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KEVIN BRADY
MEMBER OF CONGRESS
8TH DISTRICT OF TEXAS

CONGRESS OF THE UNITED STATES
HOUSE OF REPRESENTATIVES
WASHINGTON, D.C

COMMITTEES
INTERNATIONAL RELATIONS
RESOURCES
SCIENCE

October 22, 1998

Docket Management Facility
(USCG-1998-3786)
U.S. Dept. Of Transportation
Room PL-40 1
400 Seventh Street SW
Washington, D.C. 20590-0001

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U.S. DEPARTMENT OF TRANSPORTATION

RE: USCG-1998-3786 - 69

Dear Docket Management Facilitor:

I would like to respectfully submit the following proposal on behalf of a constituent of the 8th Congressional District of Texas, who is active in the commercial diving industry.

It is my understanding that existing commercial diving regulations have not been comprehensively reviewed or revised since they were published in 1977. Certainly, tremendous changes occurring in diving technology, current practices and industry standards warrant a thorough review with necessary adjustments to ensure that the safety of commercial divers remains uncompromised.

I urge you to give full consideration of the SAFEDIVE proposal when you examine the solicited recommendations of the Coast Guard to revise current commercial diving regulations.

Thank you for any assistance you can provide me in this matter

Sincerely,

Kevin Brady
U.S. Representative
Eighth District of Texas

SAFEDIVE

Request for Comment

With the encouragement of The National Association of Commercial Divers the United States Coast Guard has extended the period of comment on the reform of the current 46CFR pertaining to Commercial Diving. The purpose for this extension of time was to permit the DIVERS, people like you, to have the opportunity to be heard. Over the past several months we here at the Commercial Dive Safety Organization have formulated a proposal we plan to submit to the Department of Transportation as a part of that comment into the proposed Rulemaking. This proposal was compiled with the help of your fellow divers, past and present, diving consultants, Doctors, Coast Guard Officers and representatives of your **organization** interest in creating a safe work place. As the Coast Guard request for comment mentions, "**The** (current) regulations are over 20 years old and do not include current safety and technology standards."

This is your opportunity to be heard.

Please read through the proposal.

Comment to the National Association of Divers.
Comment to us here at Divesafe@msn.com
Comment directly to the Coast Guard but most importantly get involved.

It does not matter if you agree with the Proposal of The Association of Diving Contractors or the Proposal of the Organization of Commercial Dive Safety it only matters that you care enough about your industry, your future and your wellbeing to express your personnel opinion.

We have provided a comment page for you to fill out if you so choose. We only ask that you address your concern as you, the person at the working end of the breathing hose sees it.

Peter J. Pilkington
Divesafe@msn.com

[Comment page](#)

[Sian MY Guestbook](#)

[View Mv Guestbook](#)





Dedicated To The Preservation Of A Safer Underwater Workplace

[PROPOSAL SUMMARY](#) | [QUESTIONNAIRE](#) | [GUESTBOOK](#) | [EMAIL](#)

Important Links

Commercial Divers' Sites

[National Association of Commercial Divers](#)
[Association of Diving Contractors](#)
[Canadian Association of Commercial Divers](#)
[The Commercial Diving Directory](#)
[Commercial Diving in the Pacific Northwest](#)
[Dive Safety Consultants-Tigard Oregon](#)

Government Sites

[United States Coast Guard Home Page](#)
[Coast Guard Marine Safety Manual](#)
[Department of Transportation, Docket](#)
[OSHA Homepage](#)
[United States Congress Email Directory](#)

Open letter to NAOCD

Guestbook

Email

This is your opportunity to be heard!

The United States Coast Guard requests comments on the type and scope of needed revisions to the commercial diving operations. The regulations are over 20 years old and do not include current safety and technology standards and industry practices. At this early stage of the rulemaking process we need information on current practices, diving technology, and industry standards to help us identify the scope of any necessary regulatory revisions.

DATE: Comments must reach the Docket Management Facility on or before September 24, 1998. (This has been extend to **November 9, 1998**)

ADDRESSES: You may comment to the Docket Management Facility (USCG-1998-3786), U.S. Department of Transportation, room PL-401, 400 Seventh Street SW, Washington, D.C. 20590-0001. Or deliver them to room PL-401, located on the Plaza Level of the Nassif Building at the same address, between 10a.m. and 5 p.m., Monday through Friday, except Federal holidays. The telephone number is 202-366-9329.

FOR FURTHER INFORMATION CONTACT: For questions on this advance notice of rulemaking, contact Lieutenant Diane Kalina, Project Manager, Vessel and Facility Operating Standards Division, Coast Guard, telephone 202-267-1181. For questions on viewing, or submitting material to the docket, contact Carol Kelly, Coast Guard Dockets Team Leader, or Paulette Twine, Chief Documentary Services Division, Department of Transportation, telephone 202-366-9329.

SUPPLEMENTARY INFORMATION:

REQUEST FOR COMMENTS: The Coast Guard encourages interested persons to participate in this rulemaking by submitting written data, views, or arguments. Persons submitting comments should include their names and addresses, identify this notice (USCG-1998-3786) and the specific section or question in this document to which each comment applies, and give the reason for each comment. Please submit all comments and attachments in an unbound format, no larger than 8 ½ by 11 inches, suitable for copying and electronic filing. If you want acknowledgment of receipt of your comments, you should enclose a stamped, self-addressed postcard or envelop. The Coast Guard will consider all comments received during the comment period when developing its proposed changes to the regulations. The Coast Guard plans no public meetings. You may request a public meeting by submitting a comment requesting one to the address under ADDRESSES. The request should include the reason why a meeting would be beneficial. If the Coast Guard determines that a meeting should be held, we will announce the time and place in a later notice in the FEDERAL REGISTER.

PURPOSE: The Coast Guard needs your comments and information on the issues contained in this advance notice to help us define the scope of any necessary revisions to the commercial diving operations regulations in 46 CRF 197, Subpart B. The regulations are over 20 years old and do not include current industry practices. At this early stage of the rulemaking process we need information on current safety practices, diving technology, and industry standards to help us identify necessary regulatory revisions.

BACKGROUND: The existing commercial diving regulations were published in 1977 and only minor changes have been made to them since then.

We here at the Commercial Dive Safety Organization have formulated a proposal we plan to submit to the Department of Transportation.

Please read through the CDSO proposal

Then:

- Comment to the National Association of Divers
- Comment to us here at Divesafe@msn.com
or
- Comment directly to the Coast Guard

But most importantly - get involved!

We have provided a comment page for you to fill out if you so choose. We only ask that you address your concern as you, the person at the working end of the breathing hose sees it.

Please take the time now to fill out the questionnaire

For more information please email us at Safedive.com



000263



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Subpart B-Commercial Diving Operations

General

197.200 Purpose of subpart.

The subpart prescribes rules for the design, construction, and use of equipment, and inspection, operation, and safety and health standards for commercial diving operations taking place from vessels and facilities under Coast Guard jurisdiction.

Applicability.

This subpart applies to commercial diving operations taking place at any deepwater port or the safety zone thereof as defined in 33 CFR 150; from any artificial island, installation, or other device on the Outer Continental Shelf and the waters adjacent thereto as defined in 33 CFR 147 or otherwise related to activities on the Outer Continental Shelf; and from all vessels required to have a certificate of inspection issued by the Coast Guard including mobile offshore drilling units regardless of their geographic location, or from any vessel connected with a deep water port or within the deep water port safety zone, or from any vessel engaged in activities related to the Outer Continental Shelf; except that this subpart does not apply to any diving operation- Performed solely for marine scientific research and development purposes by educational institutions; Performed solely for research and development for the advancement of diving equipment and technology; or Performed solely for search and rescue or related public safety purposes by or under the control of a governmental agency. Diving operations may deviate from the requirements of this subpart to the extent necessary to prevent or minimize a situation, which is likely to cause death, injury, or major environmental damage. The circumstances leading to the situation, the deviations made, and the corrective action taken, if appropriate, to reduce the possibility of recurrence shall be recorded by the diving supervisor in the logbook as required by § 197.482(c).

197.203 Right of Appeal

Any person directly affected by a decision or action taken under this subchapter, by or on behalf of the Coast Guard, may appeal therefrom in accordance with subpart 1.03 of this chapter.

197.204 Definitions

As used in this subpart:

- ACFM means actual cubic feet per minute.
- ANSI Code1 means the B3 1.1 American National Standards Institute “Code for Pressure Piping, Power Piping.”
- ASME Code means the American Society of Mechanical Engineers “Boiler and Pressure Vessel Code.”
- ASME PVHO-1 means the ANSI/ASME “Standard safety Standard for Pressure Vessels for Human Occupancy.” ATA means a measure of pressure expressed in terms of atmosphere absolute (includes barometric pressure).
- Air Diving means any diving mode in which the diver’s breathing media is compressed air.
- Air Gap means the distance from the surface of the water to the hull of a jack-up, semi-submersible, or fixed platform, while it is elevated above the water. Open Bell- means a suspended platform, incorporating an ambient bubble, constructed to carry one or more divers, and used for transporting the diver(s) to, and from, the underwater work site from the dive station allows the diver(s) access to the surrounding environment, and is capable of being used as a refuge during diving operations.
- Closed Bell- means a suspended PVHO, used for transporting the divers to, and from, the underwater work site from the dive station while maintaining internal, or external, working pressure, allows the diver(s) access to the surrounding environment, and is capable of being used as a refuge during diving operations.
- Bottom time means the total elapsed time the diver leaves the surface in descent to the time to the next whole minute that the diver begins ascent.
- Breathing gas/breathing mixture means the mixed-gas, oxygen, or air as appropriate supplied to the diver for breathing.
- Bursting pressure means the pressure at which a pressure containment device would fail structurally.
- CGA means Compressed Gas Association
- Commercial diver means a properly trained, certified, and competent diver engaged in underwater work for
- Commercial diving operation means all activities in support of a commercial diver.
- Cylinder means a pressure vessel for the storage of gases under pressure.
- DCS [See “Decompression Sickness.”]
- Deck Decompression Chamber means a PVHO located at the surface, on the deck of the dive support vessel, or the dive location, specially equipped to re-compress, decompress, or to treat divers with decompression-related illnesses.
- Decompression Buoy means a floating device used to support the diver during in-water decompression.
- Decompression chamber means a pressure vessel for human occupancy such as a deck decompression chamber, closed bell, or deep diving system especially equipped to recompress, de-compress, and treat divers.
- Decompression sickness means a condition caused by the formation of gas or gas bubbles in the blood or body tissue as a result of pressure reduction.
- Decompression table means a profile or set of profiles of ascent rates and breathing mixtures designed to reduce the pressure on a diver safely to atmospheric pressure after the diver has been exposed to a specific depth and bottom time.
- Depth means the maximum pressure expressed in feet of seawater attained by a diver and is used to express the depth of a dive.
- Dive location means that portion of a vessel or facility from which a diving operation is conducted.
- Dive team means the divers and diver support personnel involved in a diving

- operation, including the diving supervisor.
- . Diver means a person working beneath the surface, exposed to hyperbaric conditions, and using underwater breathing apparatus. Diver-carried reserve breathing gas means a supply of air or mixed-gas, as appropriate, carried by the diver in addition to the primary or secondary breathing gas supplied to the diver.
 - . Diver/Tender means a properly trained, certified, and competent person who has completed the tender phase of their **training/apprenticeship**, but who has not yet acquired sufficient experience in the water to work beyond a specified depth.
 - . Diving installation means all of the equipment used in support of a commercial diving operation.
 - . Diving mode means the method of life-support provided to the diver (e.g. SCUBA, surface-supplied air, or surface-supplied mixed-gas, or saturation), with related procedures and techniques.
 - . Diving stage means a suspended platform constructed to carry one or more divers and used for putting divers into the water and bringing them to the surface when in-water decompression or a heavy-weight diving outfit is used.
 - . Diving supervisor means the properly trained, certified, and competent person having complete responsibility for the safety of a commercial diving operation including the responsibility for the safety and health of all diving personnel in accordance with this subpart.
 - . Diving Superintendent means the properly trained, certified, and competent person who, when **the** extent of the diving operation exceeds the capability of one Diving Supervisor, manages the Supervisors and the overall diving operation
 - . Diving Support Vessel (DSV) means a vessel (including Dynamically Positioned, anchored, or live-boating operations) whose primary purpose is to provide support for a commercial diving operation.
 - . Facility means a deepwater port, or an artificial island, installation, or other device on the Outer Continental Shelf subject to Coast Guard jurisdiction.
 - . Freeboard means the distance from the surface of the water to the deck of a floating vessel.
 - . Fsw means feet of seawater (or equivalent static pressure head).
 - . Gas embolism means a condition caused by expanding gases, which have been taken into the blood stream or other tissues during ascent or decompression.
 - . Heavy-weight diving outfit means diver-worn surface-supplied deep-sea dress.
 - . High Pressure Compressor means a compressor with a discharge pressure of 500 psig or greater.
 - . Hyperbaric conditions means pressure conditions in excess of surface atmospheric pressure.
 - . Injurious corrosion means an advanced state of corrosion which may impair the structural integrity or safe operation of the equipment. Life Support Technician means the properly trained, certified, and competent person responsible for management of the diver's life-support systems and decompression, especially in a saturation diving mode.
 - . Live boating means the support of a surfaced-supplied diver from a vessel underway.
 - . Low Pressure Compressor means a compressor with a discharge pressure, which is less than 500psig.
 - . Maximum working pressure means the maximum pressure to which a pressure containment device can be exposed under operating conditions (usually the pressure setting of the pressure relief device).
 - . Mixed-Gas Diving means any diving mode in which the diver's breathing media is a mixture of gases other than air (e.g. helium/oxygen, nitrogen/oxygen, etc.)
 - . No-decompression limits means the air depth and bottom time limits of appendix A.
 - . Physically Confining space means any space which would restrict the diver's ability to rotate himself head to toe, 180 degrees in any plane and/or when the

- diver has no direct access to the surface, or bell, or stage.
- . Pressure vessel means a container capable of with standing an internal maximum working pressure over 15 psig.
- . Psi(g) means pounds per square inch (gage).
- . PVHO means pressure vessel for human occupancy but does not include pressure vessels for human occupancy that may be subjected to external pressures in excess of 15 psig or less (i.e., submersibles, or one-atmosphere observation bells).
- . Saturation diving means saturating a diver's tissues with the inert gas in the breathing mixture to allow an extension of bottom time without additional decompression.
- . Saturation Technician means the properly trained: certified, and competent person responsible for the maintenance of saturation life support systems.
- . SCUBA diving means a diving mode in which the diver is supplied with a compressed breathing mixture from diver carried equipment.
- . Standby diver means a suitably dressed and adequately briefed diver at the dive station, ready to assist the diver in the water.
- . Surface-Supplied Diving means a diving mode in which the diver is tended from, and tethered by his umbilical directly to, the dive station.
- . Tender means a properly trained, certified, and competent person responsible for directly supporting the diver during all surface phases of the dive, including, but not limited to, dressing and undressing the diver, management of the diver's umbilical, and management of the diver's decompression.
- . Timekeeper means a person responsible for managing the decompression-related details of the dive, including Bottom Time, depth, decompression, and diving log maintenance.
- . Timekeeping device means a device for measuring the time of a dive in minutes.
- . Treatment table means a depth, time, and breathing gas profile designed to treat a diver for decompression sickness.
- . Umbilical means the hose bundle between a dive location and a diver or bell, or between a diver and a bell, that supplies the diver or bell with a life-line, breathing gas, communications, power, and heat as appropriate to the **diving** mode or conditions.
- . Vessel means any waterborne craft including mobile offshore drilling units required to have a Certificate of Inspection issued by the Coast Guard or any waterborne craft connected **with** a deepwater port or within the deepwater port safety zone, or any waterborne craft engaged in activities related to the Outer Continental Shelf. Volume tank means a pressure vessel connected to the outlet of a compressor and used as an air reservoir.
- . Working pressure means the pressure to which a pressure containment device is exposed at any particular instant during normal operating conditions. § 197.205 Availability of standards

Several standards have been incorporated by reference in this subchapter. The incorporation by reference has been approved by the Director of the FEDERAL REGISTER under the provisions of 1 CFR Part 5 1.

The standards re available from the appropriate organizations whose addresses are listed below:

- . American National Standards Institute 1430 Broadway New York, NY 10018
- . American Society of Mechanical Engineers United Engineering Center 345 east 47th Street New York, NY 10017

§ 197.206 Substitutes for required equipment, materials, apparatus, arrangements, procedures, or tests.

The Coast Guard may accept substitutes for equipment, materials, apparatus, arrangements, procedures, or tests required in this subpart if the substitute provides an equivalent level of safety.

In any case where it is shown to the satisfaction of the Commandant that the use of any particular equipment, material, apparatus, arrangement, procedure, or test is unreasonable, or impracticable, the Commandant may permit the use of alternate equipment, material, apparatus, arrangement, procedure, or test to such an extent and upon such condition as will insure, to his satisfaction, a degree of safety consistent with the minimum standards set forth in this subpart.

Such deviation requires prior written approval of the Commandant, or his designee.

\$197.208 Designation of person-in-charge.

The owner or agent of a vessel or facility without a designated Master shall designate, in writing, an individual to be the person-in-charge of the vessel or facility.

Where a master is designated, the master is the person-in-charge.

\$197.210 Designation of diving supervisor

Prior to the commencement, the name of the diving Supervisor for each commercial diving operation shall be - Designated in writing by the diving contractor; and A copy of the written designation shall be- Given to the person-in-charge prior to the commencement of any commercial diving operation.; and Delivered to the Commandant, or his designee.

Only one Supervisor shall be designated to supervise a diving operation at any one time; No person shall be designated, nor shall act, as Supervisor unless he or she is properly trained, certified, and competent in respect of the diving operation which he or she is designated to supervise; and During the Supervisor's dive, another person satisfying the requirements of this section shall be designated, in writing by the diving contractor, to supervise in the Supervisor's absence.

Equipment

\$197.300 Applicability.

Each diving installation used on each vessel or facility subject to this subpart must meet the requirements of this subpart. In addition to the requirements of this subpart, equipment, which is permanently installed on vessels and is part of the diving installation must meet Subchapters F and J of this chapter. All repairs and modifications to pressure vessels used for commercial diving operations must be made in accordance with the requirements of section VIII, division 1 or division 2 of the ASME Code, ASME PVHO-1, part 54 of this chapter, or 49 CFR 173.34 as applicable. All repairs and modifications to pressure piping used for commercial diving operations must be made in accordance with the requirements of the ANSI Code or Part 56 of this chapter, as applicable.

An equipment maintenance log shall be established and maintained.

Each piece of diving equipment shall have a unique identity traceable to it's own equipment maintenance log. Equipment maintenance logs are - to accompany the associated equipment at all times; to be maintained for the working life of the equipment; and to be retained for a period of **five** years thereafter. Entries made in the equipment log shall describe the nature of the work performed, and shall include the

date of modification, repair or test, and the name of the individual performing the repair work or test.

Individual persons performing maintenance repair test or modification to diving equipment shall both print and sign his or her name in the equipment log.

§ 197.310 Air Compressor system.

Low pressure compressor systems used to supply breathing air to a diver must have A volume tank that is built and stamped in accordance with section VIII, division 1 of the ASME Code with- a check valve on the inlet side; a pressure gage; a relief valve; and a drain valve; and Tested after every repair, modification, or alteration to the pressure boundaries as required by § 197.462; Intakes that are located away from areas containing exhaust fumes of internal combustion engines or other hazardous contaminants; An **efficient** filtration system; and Slow-opening shut-off valves when the maximum allowable working pressure of the system exceeds 500 psig.

§ 197.312 Breathing supply hoses.

- . Each breathing supply hose must- have a maximum working pressure that is equal to or exceeds - the maximum working pressure of the section of the breathing supply system in which used; and the pressure equivalent of the maximum depth of the dive relative to the supply source plus 150 psig;
- . Have a bursting pressure of four times its maximum working pressure;
- . Have connectors that- Are made of corrosion-resistant material; Are resistant to accidental disengagement and Have a maximum working pressure that is at least equal to the maximum working pressure of the hose to which they are attached; and
- . Resist kinking by- Being made of kink-resistant materials; or Having exterior support.

Each umbilical must -

- . Meet the requirements of paragraph (a) of this section; and
- . Be marked from the diver or open bell end in 10-foot intervals to 100 feet and in 50-foot intervals thereafter to an industry recognized standard. 197.3 14 First aid and treatment equipment.

Each dive location must have-

- . A medical kit approved by a physician that consists of - Basic **first** aid supplies; and any additional supplies necessary to treat minor trauma and illnesses resulting from hyperbaric exposure; A copy of and American Red Cross Standard First Aid handbook, or equivalent approved by a physician; and
- . A capability to remove an injured diver from the water.

Each diving installation must have a readily available two-way communications system to obtain emergency assistance.

Each dive location supporting mixed-gas dives, dives deeper than 80 fsw, or dives outside the no-decompression limits must meet the requirements of paragraph (a) of this section and have-

- . A decompression chamber;
- . Decompression and treatment tables;
- . A supply of breathing gases sufficient to treat for decompression sickness;
- . The medical kit required by paragraph (a)(1) of this section that is -capable of

being carried into the decompression chamber and suitable for use under hyperbaric conditions; and

- . A capability to assist an injured diver into, and out of, the decompression chamber.

§ 197.318 Gages and timekeeping devices.

A gage indicating diver depth must be at each dive location for surface-supplied dives; It shall be of appropriate range and graduation to indicate a diver's depth, It shall be graduated in units, which are consistent with decompression table to be utilized.

A timekeeping device must be at each dive location; and All timekeeping devices must be synchronized with a referenced timekeeping device on the dive location.

§ 197.320 Diving ladders and stage.

(a) Each diving ladder must Be capable of supporting the weight of at least two divers; Be of **sufficient** length to allow the diver to enter and exit the water safely. Be firmly in place Be available at the dive location for the diver to enter or exit the water unless a diving stage or bell is provided; and be made of corrosion-resistant material; Or protected against and maintained free from injurious corrosion.

b) Each diving stage must- Be capable of supporting the weight of at least two divers; Have an open-grating platform; Be available for a diver to enter or exit the water from the dive location, and for in-water decompression if the diver is- Wearing a heavy-weight diving out tit; or Diving outside the no-decompression limits, except when a bell is provided; Be- Made of corrosion-resistant material; or Protected against and maintained free from injurious corrosion.

§197.322 Surface-supplied helmets and masks.

Each surface-supplied helmet or mask must **have-**

A non-return valve at the attachment point between helmet, or mask, and umbilical that closes readily and positively; An exhaust valve; and A two-way voice communication system between the diver and the dive location or bell.

Each surface-supplied air helmet or mask must-

(1) Ventilate at least 4.5 ACFM at any depth at which it is operated; or

(2) Be able to maintain the diver's inspired carbon dioxide partial pressure below 0.02 ATA when the diver is producing carbon dioxide at the rate of 1.6 standard liters per minute.

§ 197.324 Diver's safety harness

Each safety harness used in surface supplied diving must have a positive buckling device; and an attachment point for the umbilical life line that distributes the pulling force of the umbilical over the diver's body; and Prevents strain on the mask or helmet.

§197.326 Oxygen safety.

Equipment used exclusively for oxygen must be designed for such use.

Oxygen systems with pressures greater than 125 psig must have slow-opening shut-off valves except pressure boundary shut-off valves may be ball valves.

197.328 PVHO-GENERAL.

- . Each PVHO, must be built and stamped in accordance with ASME PVHO-1, or equivalent international standard as approved by the Commandant, or his designee.
- . Each PVHO not Coast Guard approved must be submitted to the Coast Guard for approval prior to being placed in service. To be approved under paragraph (b), a PVHO must be- Constructed in accordance with Part 54 of this chapter; or be built in accordance with section VIII, division 1 or division 2 of the ASME Code; and have plans approved in accordance with 54.0 1 - 18 of this Chapter
- . Pass the radiographic and other survey tests of welded joints required by section VIII, division 1 or division 2 of the ASME Code; and pass the hydrostatic test described in §54.10-1 0 of this chapter; or the pneumatic test described in 54.10-1 5 of this chapter and such additional tests as the Officer-in-charge, Marine Inspection (OCMI) may require.
- . Each PVHO must- A valve, with a maximum working pressure (MWP) of 1.5 times the MWP of the system on which they are installed, on each side of the hull, within one foot of the penetration; A plug, with a maximum working pressure (MWP) of 1.5 times the MWP of the system on which they are installed, on each side of the penetration; or a combination of (i) and (ii). Have a check valve located within 1 foot of the pressure boundary on all piping exclusively carrying fluids into the PVHO; Have the pressure relief device required by ASME PVHO-1, or equivalent international standard; Have a built-in breathing system with at least one mask per occupant stored inside each separately pressurized compartment; Have a two-way voice communications system allowing **communications** between an occupant in one pressurized compartment of the PVHO and the diving supervisor at the dive location; Any divers being supported from the same PVHO; and Occupants of other separately pressurized compartments of the same PVHO; If designed to mechanically couple to another PVHO, have a two-way communications system allowing communications between occupants of each PVHO when mechanically coupled; Have a pressure gage in the interior of each compartment that is designed for human occupancy; and Capable of having the compartment pressure controlled from inside the PVHO; Have view ports that allow observation of occupants from the outside; Have viewports that meet the requirements of ASME PVHO-1 except those PVHO's approved under paragraph (b) of this section which have non-acrylic viewports; Have means of illumination sufficient to allow an occupant to read gages; and Operate the installed systems within each compartment; Be designed and equipped to minimize sources of combustible materials and ignition; Have a protective device on the inlet side of PVHO exhaust **lines**; Have a means of extinguishing a fire in the interior; Have a means of maintaining the oxygen content of the interior atmosphere below 25 percent surface equivalent by volume when pressurized with air as the breathing **mixture**; Have a means of maintaining the interior atmosphere below 2 per-cent surface equivalent carbon dioxide by volume; Have a means of overriding and controlling from the exterior all interior breathing and pressure supply controls; Have a speech unscrambler when used with mixed-gases; Have interior electrical systems that are designed for the environment in which they will operate to minimize the risk of fire, electrical shock to personnel, and galvanic action of the PVHO; and be tested after every repair, modification, or alteration to the pressure boundaries as required by 197.462.

197.330 PVHO - Closed Bells.

Except as provided in paragraph (b) of this section, each closed bell must meet the

requirements of 197.328 and

- . Have underwater breathing apparatus for each occupant stored inside each separately pressurized compartment; Have an umbilical for each occupant;
- . Have lifting equipment attached to the closed bell capable of returning the occupied closed bell, when fully flooded, to the dive location;
- . Be capable of recompressing on the surface to the maximum design diving depth;
- . Have an emergency locating device designed to assist personnel on the surface in acquiring and maintaining contact with the submerged PVHO if the umbilical to the-surface is severed;
- . Have a capability to remove an injured diver **from** the water; and sufficient **onboard** breathing gas to allow a diver to remain outside the bell for 30 minutes at the maximum depth rating of the bell, or dive site natural bottom, at a breathing rate of 1.5 ACFM; and sufficient **onboard** life support systems to support the number of occupants for a period of 24 hours at a consumption rate of .017 cubic feet per minute; or a closed bell that does not meet the requirements of paragraphs (a)(3), and (a)(4), of this section, must be capable of attachment to another PVHO that allows the transfer of personnel and diver's equipment under pressure from the closed bell to the PVHO;
- . Meets the requirements of **paragraph(a)(3)** of this section;
- . Is capable of attachment to a decompression chamber meeting the requirements of paragraphs (a)(4) and (a)(5) of this section; and allows the transfer of personnel and diver's equipment under pressure from the PVHO to the decompression chamber.

§ 197.332 PVHO-Decompression chambers.

Each decompression chamber must-

- . Meet the requirements of § 197.328;
- . Have internal dimensions sufficient to accommodate a diver lying in a horizontal position and another person tending the diver;
- . Have a capability for ingress and egress of personnel and equipment while the occupants are underpressure;
- . Have a means of operating all installed man-way locking devices, except disabled shipping dogs, from both sides of a closed hatch;
- . Have interior illumination sufficient to allow visual observation, diagnosis, and medical treatment of an occupant.
- . Have one bunk for each two occupants;
- . Have a capability that allows bunks to be seen over their entire lengths from the exterior;
- . Have a minimum pressure capability of 6 ATA, when used for diving to 300 fsw; or the maximum depth dive, when used for diving operations deeper than 300 fsw, unless a closed bell meeting the requirements of §197.330(a) (3), (4), and (5) is used:
- . Have a minimum pressurization rate of 2 ATA per minute to 60 fsw and at least 1 ATA per minute thereafter;
- . Have a decompression rate of 1 ATA per minute to 33 fsw;
- . Have an external pressure gage for each pressurized compartment;
- . Have a capability to supply breathing mixtures at the maximum rate required by each occupant doing heavy work; and
- . Have a sound-powered headset or telephone, as a backup to the communications system required by § 197.328(c) (5) and (6), except when that communications system is a sound-powered system.

§ 197.334 Open diving hells.

Each open diving bell must- Have an upper section that provides an envelope capable of maintaining a bubble of breathing mixture available to a diver standing on the lower section of the platform with his body through the open bottom and his head in the bubble; Have lifting equipment capable of returning the occupied open bell to the dive location; Have an umbilical; and be- Made- Of corrosion-resisting material; or Protected against and maintained free from injurious corrosion.

197.336 Pressure piping

Piping systems that are not an integral part of the vessel or facility, carrying fluids under pressures exceeding 15 psig must Meet the ANSI code; Have the point of connection to the vessel or facility clearly marked; and Be tested after every repair, modification, or alteration to the pressure boundaries as set forth in § 197.462.

§ 197.338 Compressed gas cylinders.

Each compressed gas cylinder must- Be stored in a ventilated area; Be protected from excessive heat; Be prevented from falling; Be tested after any repair, modification, or alteration to the pressure boundaries as set forth in 197.462; and Be visually examined, annually, for damage or corrosion. Be inspected internally, annually, if used underwater. Be labeled as to contents. Meet the requirements of- Part 54 of this Chapter; or 49 CFR 173.34 and CFR 178 Subpart C.

\$197.340 Breathing gas supply.

A primary breathing gas supply must be sufficient to support the following for the duration of the planned dive: The diver. The standby diver. The decompression chamber, when required by § 197.432(e)(2) or by § 197.434(a) for the duration of the dive and for one hour after completion of the planned dive. A decompression chamber, when provided but not required by this subpart. A closed bell when provided or required by §197.434(d). An open bell when provided or required by §197.432 (e)(4) or by §197.434(c). A secondary breathing gas supply must be sufficient to support the following: The diver while returning to the surface or the bell. The diver during decompression. The standby diver. The decompression chamber when required by § 197.432(e)(2) or by § 197.434(a) for the duration of the dive and one-hour after the completion of the planned dive. The closed bell while returning the diver to the surface. The open bell while returning the diver to the surface.

A diver-carried reserve breathing gas supply must be sufficient to allow the diver to- Reach the surface or the bell; Reach another source of breathing gas; or Be reached by a standby diver equipped with another source of breathing gas for the diver. A primary breathing gas supply for SCUBA diving must be sufficient to support the diver for the duration of the planned dive through his return to the dive location or planned pick-up point. A diver-carried reserve breathing gas supply for SCUBA diving must be sufficient to allow the diver to return to the dive location or planned pick-up point from the greatest depth of the planned dive. Oxygen used for breathing mixtures must- Meet the requirements of Federal Specification BB-O-925a; and Be type 1 (gaseous) grade A or B. Nitrogen used for breathing mixtures must- Meet the requirements of Federal Specification BB-N-41 1c; Be type 1 (gaseous); Be class 1 (oil free); and Be grade A, B, or C. Helium used for breathing mixtures must be grades A, B, or C produced by the Federal Government, or equivalent. Compressed air used for breathing mixtures must - Meet the requirements of ANSI/CGA 7.1 Grade "D," or equivalent; Be CGA grade "E" for synthesized air,

197.342 Buoyancy-changing devices.

A dry suit or other buoyancy-changing device not directly connected to the exhaust valve of the helmet or mask must have an independent exhaust valve.

When used for SCUBA diving, a buoyancy-changing device must have an inflation source separate from the breathing gas supply.

§197.344 Inflatable floatation devices.

An inflatable floatation device for SCUBA diving **must-**

Be capable of maintaining the diver at the surface in a face up position; Have a manually activated inflation device; Have an oral inflation device; Have an over-pressure relief device; and Have a manually operated exhaust valve.

§197.346 Diver's equipment

Each diver using SCUBA must have-

- Self-contained underwater breathing equipment **including-**
- A primary breathing gas supply with a cylinder pressure gage readable by the diver during the dive; and A diver-carried reserve breathing gas supply provided by an independent reserve cylinder connected and ready for use;
- A face mask;
- An inflatable floatation device;
- A weight belt capable of quick release;
- A knife;
- Swim fins or shoes;
- A diving wristwatch; an
- A depth gage.

Each diver using a heavyweight diving outfit must-

- . Have a helmet group consisting of helmet, breastplate, and associated valves and connections;
- . Have a diving dress group consisting of a basic dress that encloses the body (except for head and hands) in a tough, waterproof cover, gloves, shoes, weight assembly, and knife;
- . Have a hose group consisting of the breathing gas hose and fittings, the control valve, the lifeline, communications cable, and a pneumofathometer; and
- . Be provided with a helmet cushion and weighted shoes.

Each surface-supplied dive operation using a heavyweight diving **outfit** must have an extra breathing gas hose with attaching tools available to the standby diver.

Each diver using a lightweight diving outfit must have-

- . A safety harness;
- . A weight assembly capable of quick release;
- . A mask group consisting of a lightweight mask and associated valves and connections;
- . A diving dress group consisting of a diving dress that provides suitable protection for existing environmental conditions and maintains the divers thermal balance within normal limits; and A hose group shall consist of; a breathing gas hose, communications cable, a means of determining the divers depth and an included strength member and Have the nominal breaking strength of the hose group assembly, including the terminating hardware shall be 1,000 lbs.

Each surface-supplied dive operation must have at the dive location -

- . a primary breathing gas supply; and a secondary breathing gas supply.

(f) Each diver entering the water shall have a diver-carried reserve breathing gas supply, except when using a heavyweight diving outfit.

OPERATIONS

§ 197.400 Applicability.

Diving operations may only be conducted from a vessel or facility subject to the subpart if the regulations in this subpart are met.

§197.401 DESIGNATION OF PERSON-IN-CHARGE

The person in charge shall be the owner of the vessel or facility, or designated in writing by the owner.

5197.402 Responsibilities of the person-in-charge.

The person-in-charge shall-

- . Be fully cognizant of the provisions of this subpart;
- . Prior to permitting any commercial diving operation to commence, have, in writing -
 - . The designation of the diving supervisor for each diving operation as required by § 197.2 10; A report on - The nature and planned times of the planned diving operation; and The planned involvement of the vessel or facility, its equipment, and its personnel in the diving operation. Prior to permitting any commercial diving operation involving liveboating to commence, the person-in-charge shall insure that -
- . A means of rapid communications with the diving supervisor while the diver is entering, in, or leaving the water is established; and
- . A boat and crew are available for diver pickup in the event of an emergency is provided.
- . The person-in-charge shall coordinate the activities on and of the vessel or facility with the diving supervisor.
- . The person-in-charge shall insure that the vessel or facility equipment and personnel are kept clear of the dive location except after coordinating with the diving supervisor.

§ 197.403 DESIGNATION OF DIVING SUPERVISOR

The diving supervisor shall be designated in writing and written designation supplied to the person in charge prior to the commencement of dive operations

§ 197.404 Responsibilities of the Diving Supervisor

The Diving Supervisor shall

- . be trained and experienced in the responsibilities of the Diving Supervisor, a Standard to be determined by the Commandant of The United States Coast Guard Commercial Diver Training - Minimum Standards; Be trained and experienced in the type of diving for which he or she will be responsible as per § 197.406 of this subpart; Be fully cognizant of the provisions of this subpart;

- . Be fully cognizant of the provisions of the operations manual required by 197.420;
- . Insure that diving operations conducted from a vessel or facility subject to this subpart meet the regulation in this subpart;
- . Prior to the commencement of any commercial diving operation, provide the report required by § 197.402 to the person-in-charge;
- . Coordinate with the person-in-charge any changes that are made to the report required by § 197.402; and
- . Promptly notify the person-in-charge of any diving related casualty, accident, or injury.

The diving supervisor is in charge of the planning and execution of the diving operation including the responsibility for the safety and health of the dive team.

§ 197.405 Responsibilities of the Diving Superintendent

Where the nature or size of a diving operation requires a Diving Superintendent, a person shall not be a Diving Superintendent unless that person has - Been appointed, in writing by the Diving Contractor; Is able to supervise diving operations competently, and Complies with the requirements of § 197.404 Responsibilities of the Diving Supervisor.

197.406 Responsibilities of the Diver

The diver shall -

- Be trained and experienced in the type of diving for which he or she will be involved as per a standard to be approved by the Commandant of The United States Coast Guard; No person shall dive unless he or she, has undergone a medical examination to determine fitness to dive during the **24-month** period preceding the dive or during such shorter period preceding the dive as has been recommended by the person's examining physician; and has obtained a written statement from the examining physician who performed the most recent examination under clause indicating whether the diver is **fit** to dive or **tit** to dive with limitations, and an examination under this subsection shall be performed by a physician who is knowledgeable in diving and hyperbaric medicine, and has obtained a written statement **from** the examining physician that meets the requirements of this subsection including the examining physician's name and address and shall be signed by the physician. Be fully cognizant of the provisions of this subpart; Be fully cognizant of the provisions of the operations manual required by § 197.420;
- Maintain the Diver's Logbook No person shall dive in a diving operation unless he or she has a diving log book that, is permanently bound, has numbered pages; contains the diver's signature and photograph; and has attached to it or entered into it a record of any qualifications obtained by the diver that relate to diving; **andhas** attached to it or entered into it a record of the certification
- Each person who dives in a diving operation shall make an entry in the diving logbook in respect of each dive, each medical recompression and each hyperbaric exposure carried out or undergone by the person in connection with the diving operation.
- No person shall dive in a diving **operation** unless he or she has made an entrv in the diving logbook.
- Entries shall be made within 48 hours of the dive, medical recompression or hyperbaric exposure and shall appear in the logbook in chronological order.
- An entry in respect of a dive shall be signed by the diving supervisor and or in the event of a medical recompression or a hyperbaric exposure an entry shall be signed by the diving supervisor or presiding physician.

The type of diving equipment used; the breathing mixture used; the time the diver left the surface; the maximum depth attained; the time the diver left the bottom; the time the diver reached the surface; the time of the surface interval, if a repetitive dive was undertaken; the decompression table used; the date; any unusual incidents; and the environmental conditions.

In respect of a dive originating from a submersible compression chamber or other submerged base shall state, The depth at the base; the maximum and minimum depths attained; and the duration of the excursions from the base.

A person who is required to have a diving log book shall retain the log book and be certified in general and hyperbaric first aid and CPR.

§ 197.407 - Systems maintenance, life support and diver medical technicians

Where required under the provisions of this subpart, there shall be provided an experienced maintenance technician who shall personally, under the supervision of a Diving Supervisor, undertake and be responsible for the repair, maintenance and safe functioning of equipment used in diving operations.

A person shall not perform the functions referred to in sub-clause (a) unless that person has such knowledge and experience as approved necessary to perform those duties.

Where required under the provisions of this subpart, there shall be provided an experienced life support technician who shall, under the supervision of the Diving Supervisor, control and monitor all the systems functions which relate to the "life support", safety and health of any person inside a surface compression chamber. A person shall not perform the functions referred to in sub-clause (b) unless that person has such knowledge and experience as approved necessary to perform those duties,

Where required under the provisions of this subpart, there shall be provided a diver medical technician who shall, where required, render advanced first-aid treatment. A person shall not perform the functions referred to in sub-clause (c) unless that person complies with the provisions of sub-clause 808(3).

§ 197.408 - Responsibilities of the Diver's Attendant (Tender)

A Tender shall have sufficient knowledge of -

- . Underwater work;
- . The signals and communication devices used in diving operations;
- . Decompression procedures; and
- . Be certified in medical first aid and CPR.

§ 197.409 - Responsibilities of the Diving Contractor

The Diving Contractor shall be fully cognizant of the requirements of this subpart. Shall maintain coverage under the Longshore Act 33 USC932

§ 197.410 Dive procedures

The diving supervisor shall insure that before commencing diving operations, dive team members are briefed on the tasks to be undertaken; Any unusual hazards or environmental conditions likely to affect the safety of the diving operation; and Any modifications to the operation manual or procedures including safety procedures

necessitated by the specific diving operation; The breathing gas supply system, masks, helmets, thermal protection, when provided, and bell lifting equipment, when a bell is provided or required, are inspected prior to each diving operation;

Each diver is instructed to report any physical problems or physiological effects including aches, pains, current illnesses, sickness prior to each dive;

A depth, bottom time profile, including any breathing mixture changes, is maintained at the dive location for each diver during the dive, except that SCUBA divers shall maintain their own profiles.

A two-way voice communication system is used between each surface-supplied diver and a dive team member at the dive location The Bell (when provided) and the dive location: A two-way communication system is available at the dive location to obtain emergency assistance;

During the dive -

The Diving Supervisor shall not undertake or be assigned any secondary duties, which might limit his or her ability to carry out the primary duties of supervising the dive. Any dive team member shall not undertake or be assigned any secondary task that might interfere with those members' primary duties. After the completion of each dive the supervisor shall insure that;

The physical condition of the diver is checked by - Visual observation; and Questioning the diver about his wellbeing; The diver is instructed to report any physical problems or adverse physiological effects including aches, pains, current illnesses, or symptoms of decompression sickness or gas embolism; The diver is advised of the location of an operational decompression chamber; and

The diver is alerted to the potential hazards of flying after diving;

For any dive outside the no-decompression limits, deeper than 80 fsw, or using mixed-gas as a breathing mixture -

A depth, time, decompression profile including breathing mixture changes is maintained for each diver at the dive location; The diver is instructed to remain awake and in the vicinity of the dive location decompression chamber for at least one hour after the completion of a dive, decompression, or treatment; and A dive team member, other than the diver, is trained and available to operate the decompression chamber; and When decompression sickness or gas embolism is suspected or symptoms are evident, a report is completed **containing-**

The investigation for each incident including- The dive and decompression profiles; The composition, depth, and time of breathing mixture changes;

A description of the symptoms including depth and time of onset; and A description and results of the treatment; The evaluation for each incident based on - The investigation; Consideration of the past performance of the decompression table used ; and Individual susceptibility; and The corrective action taken, if necessary, to reduce the probability of recurrence. The diving supervisor shall ensure that the working interval of a dive is terminated when he so directs or **when-**

A diver requests termination;

A diver fails to respond correctly to communications or signals from a dive team member:

Communications are lost and can not be quickly reestablished **between-**

The diver and a dive team member at the dive location; or The person-in-charge and the diving supervisor during liveboating operations; or a diver begins to use his diver carried reserve breathing gas supply.

(c) A Lock-Out/Tag-Out (LOTO) procedure is used on main propulsion **and/or** other machinery controls **onboard** vessels or stationary platforms engaged in diving operations to provide a warning to anyone attempting to engage or operate machinery which may be potentially hazardous to the diver(s) safety.

§ 197.420 Operations manual

The diving supervisor shall -

- . Provide an operations manual to the person-in-charge prior to commencement of any diving operation; and
- . Make an operations manual available at the dive location to all members of the dive team.
- The operations manual must be modified in writing when adaptation is required because of ~~t~~**The** configuration or operation of the vessel or facility; or the specific diving operation as planned.
- . The operations manual must provide for the safety and health of the divers.

The operations manual must contain the following:

- Safety procedures and checklist for each diving mode used.
- Assignments and responsibilities of each diving mode used.
- Equipment procedures and checklists for each diving mode used.
- Emergency procedures for- Fire; Equipment failure; Adverse environmental conditions including, but not limited to, weather and sea state; Medical illness; and treatment of injury. Procedures dealing with the use of - Hand-held power tools. Welding and burning equipment; and Explosives.

SPECIFIC DIVING MODE PROCEDURES

§ 197.430 SCUBA diving. (Consideration should be given to removing all reference to SCUBA)

The Diving supervisor shall insure that SCUBA diving is not conducted outside the no-decompression **limits**; at depths greater than 130 **fsw**; **Against** currents greater than one (1) knot unless line-tended; and if a diver cannot directly ascend to the surface The SCUBA diver has the **equipment** required by § 197.346(a);

A standby diver is available while a diver is in the water;

A diver is line-tended from the surface or accompanied by another diver in the water in continuous visual contact during the diving operation;

When a diver is in a physically confining space, another diver is stationed at her underwater point of entry and is in-tending the diver; and

A boat is available for diver pickup when the divers are not line tended from the dive location.

§ 197.432 Surfaced-supplied air diving.

Surface-supplied air diving operations shall be conducted at depths less than 190 fsw, except that surface-supplied dives with bottom times of 30 minutes, or less, may be conducted to depths of 220 fsw;

- Provide a primary breathing gas supply
- provide a secondary breathing gas supply;
- Ensure that each diver is continuously tended by a separate dive team member while in the water;
- When a diver is in a physically confining space, another diver is stationed at the underwater point of entry and is line-tending the diver;
- A suitably dressed, and adequately briefed standby diver is at the dive station, and ready to assist the diver in the water;
- Each diver has a diver-carried reserve breathing gas supply, except when the diver is using a heavy-weight diving outfit or dives deeper than 80 FSW or outside the no-decompression limits
- A decompression chamber is ready for use at the dive location;
- A diving stage is available to enter or exit the water from the dive location and for in-water decompression if the diver is wearing heavyweight diving outfit or diving on a decompression table requiring in-water decompression, except when a bell is provided; or exposed to an air gap of greater than 15 feet; or where conditions or crew size prohibits the recovery of the diver to the dive station, and a bell is used for dives with an in-water decompression time greater than 100 minutes, except when the diver is using a heavy-weight diving outfit or is diving in a physically confining space;
- A separate dive team member tends each diver in the water;
- The surface-supplied air diver has the equipment required by 197.346 (b) or (d).

§ 197.434 Mixed-gas diving.

When mixed-gas diving is conducted,

- A decompression chamber or a closed bell meeting the requirements of 197.332 is ready for use at the dive location;
- A diving stage is used except when a bell is provided;
- An Open Bell is used for dives deeper than 220 fsw or when the dive involves in-water decompression times greater than 100 minutes
- A closed bell is used for dives at depths greater than 300 fsw
- A separate dive team member continuously tends each diver in the water;
- A standby diver is on station, suitably dressed and prepared to dive while the diver is in the water;
- When a diver is in a physically confining space, another diver is stationed at the underwater point of entry and is line-tending the diver;
- Each diving operation has a primary and secondary breathing gas supply meeting the requirements of 197.340; and The surface-supplied mixed-gas diver has the equipment required by 197.346 (b) or (d).

When saturation diving is conducted-

- . A standby diver is available when the closed bell leaves the dive location until the divers are in saturation; and
- . A member of the dive team at the dive location is a diver able to assist in the recovery of the closed bell or its occupants, if required;
- . When closed bell operations are conducted, a diver is available in the closed bell to assist a diver in the water;

197.435 BELL BOUNCE AND SATURATION DIVING

When closed bell diving operations are conducted.

A member of the diver team at the dive location is a diver able to assist in the recovery of the closed bell or its occupants, if required.

Bell bounce and saturation diving shall be conducted utilizing PVHO's fitted as per 197.328, 197.330, & 197.332.

Each diving operation from a closed bell shall

- . have primary and secondary breathing gas' supply meeting the requirements of 197.340;
- . Have a diver in the bell equipped to assist the diver in the water;
- . Have mixed gas divers equipped as required by 197.346.
- . All saturation operations must have a hyperbrac life boat and capable of being deployed within 15 minutes and able to decompress the total number of occupants
- . Be rated for the deepest planed allowable working depth.

§197.436 Liveboating

During liveboating operations, the person-in-charge shall insure that -

Diving is not conducted in seas that impede station-keeping ability of the vessel;

Liveboating operations are not conducted -

From 1 hour after sunset to 1 hour before sunrise; or During periods of restricted visibility;

The propellers of the vessel are stopped before the diver enters or exits the water; and

A boat is ready to be launched with crew in the event of an emergency.

During liveboating operations, the diving supervisor shall insure that -

Diving is not conducted at depths greater than 220 fsw;

Diving is not conducted in seas that impede diver mobility, or work function, or ability to decompress safely;

Measures are taken to prevent the diver's hose from entangling in the propellers of the vessel;

Each diver carries a reserve breathing gas supply;

A standby diver is on station, suitably dressed and prepared to dive while a diver is in the water;

Diving is not conducted with in-water decompression time greater than 100 minutes;

The person in charge is notified before a diver enters or exits the water.

A means of direct voice communication available between the dive station and the person in control of maneuvering the vessel,

A kill switch is immediately available to the person in control of maneuvering the vessel, for immediate shutdown of the engines.

A decompression buoy may be used in place of a diving stage to support in-water decompression so long as a suitable means exists for the diver to enter or exit the water as required by 197.320.

197.438 -WORKING WITH REMOTE OPERATED VEHICLES (ROV'S)

Before commencement of any joint ROV/Diving operations, a clear chain of command must be established;

All ROV operations conducted concurrent with diving operations shall be coordinated through the Diving Supervisor;

Two-way voice communications shall be available between the ROV pilot & the dive control station;

All ROV movements are to be cleared through the Diving Supervisor while a diver is in the water; and

ROV thrusters are to be fitted with guards to prevent entanglement with the diver's umbilical.

§ 197.440 DIVING FROM A DYNAMICALLY POSITIONED VESSEL

All diving operations conducted from a Dynamically Positioned Vessel shall be conducted in accordance with guidelines approved by the Commandant.

PERIODIC TESTS AND INSPECTIONS OF DIVING EQUIPMENT

§ 197.450 Breathing gas tests.

The diving supervisor shall insure that -

The output of each air compressor has been tested, and meets the requirements of 197.340 for quality and quantity by means of samples taken at the connection point to the distribution system,

Every 6 months; and

After every repair or modification.

Purchased supplies of breathing mixtures supplied to a diver are checked before being placed on line for -

Certification that the supply meets the requirements of 197.340;

Noxious or offensive odor; and Oxygen content; Each breathing supply system is checked, prior to commencement of diving operations, at the umbilical or underwater breathing apparatus connection point for the diver, for noxious or offensive odor and presence of foreign material; and Each breathing supply system, supplying mixed gas to a diver, is checked. Prior to commencement of diving operations, at the umbilical or underwater breathing apparatus connection point for the diver, for percentage of oxygen.

§ 197.452 Oxygen cleaning.

The diving supervisor shall ensure that equipment used with oxygen or oxygen measures greater than 40 percent by volume is cleaned of flammable materials before being placed into service; and after any repair, alteration, modification, or suspected contamination.

§ 197.454 First aid and treatment equipment.

The diving supervisor shall ensure that medical kits are checked prior to commencing diving operations to ensure that all required supplies are present.

§ 197.456 Breathing supply hoses.

The diving supervisor shall insure that - Each breathing supply hose is pressure tested prior to being placed into initial service and every 12 months thereafter hydrostatically to 1.5 times its maximum working pressure; Each breathing supply hose assembly, prior to being placed into initial service and after any repair, modification, or alteration! is tensile tested by - Subjecting each hose-to-fitting connection to a 200 pound **axial** load; and Passing a visual examination for evidence of separation, slippage, or other damage to the assembly; Each breathing supply hose is periodically checked for - Damage which is likely to affect pressure integrity; and Contamination which is likely to affect the purity of the breathing mixture delivered to the diver; and The open ends of each breathing supply hose are taped, capped, or plugged when not in use. To meet the requirements of paragraph (a)(3) of this section each breathing supply hose must **be-**

Pressure tested to its normal working pressure prior to commencing diving operations;

Visually checked during daily operation; and

Checked for noxious or offensive odor before each diving operation.

§ 197.458 Gages and timekeeping devices.

The diving supervisor shall insure that- Each depth gage and timekeeping device is tested or calibrated against a master reference gage or time- keeping device every 6 months; A depth gage is tested when a discrepancy exists in a depth gage reading greater than 2 percent of full scale between any two gages of similar range and calibration; A timekeeping device is tested when a discrepancy exists of greater than one-quarter of a minute in a 4-hour period between any two timekeeping devices; and Each depth gage and timekeeping device is inspected before diving operations are begun; All timekeeping devices on a diving location shall be synchronized, on a daily basis, against a referenced device.

197.460 Diving equipment

The diving supervisor shall insure that the diving equipment designated for the use in a dive under § 197.346 is inspected before each dive.

§ 197.462 Pressure vessels and pressure piping.

The diving supervisor shall insure that each volume tank, cylinder, PVHO, and pressure piping system has been examined and tested every 12 months and after any repair, modification, or alteration to the extent necessary to determine that they are in condition and fit for the service intended.

The following tests must be made to meet the annual requirements of paragraph (a) of

this section:

An internal and external visual examination for mechanical damage or deterioration. If a defect is found that may impair the safety of the pressure vessel, a hydrostatic test must be performed.

A leak test.

A Pneumatic test.

The following tests must be made after any repair, modification or alteration to meet the requirements of paragraph (a) of this section:

An internal and external visual examination for correctness and adequacy of repair, modification, or alteration.

A leak test

(3)A hydrostatic test when the repair, modification, or alteration affects the pressure boundary.

When the pneumatic test on pressure vessels is ~~conducted-~~

The test pressure must be the maximum allowable working pressure stamped on the pressure vessel; and

The test may be conducted only after suitable precautions are to protect personnel and equipment

When the pneumatic test on pressure piping is conducted:

The test pressure must be no less than 90 percent of the setting of the relief device; and

The test may be conducted only **after** suitable precautions are taken to protect personnel and equipment.

When a hydrostatic test on a pressure vessel is made, the test pressure must be:

1.25 times the pressure stamped on the pressure vessel built to division 2 of the ASME Code; and

(2)1.5 times the pressure stamped on pressure vessels built to division 1 of the ASME Code; or

(3)As required by the Code if construction.

When a hydrostatic test on pressure piping is conducted, the test must be conducted in accordance with the Code of Construction

When the leak test on pressure vessels or pressure piping is conducted:

The test must be conducted with the breathing mixture normally used in service;

The test must be conducted at maximum allowable working pressure; and

The test pressure must be maintained for a minimum of 10 minutes to allow checking all joints, connection, and regions of high stress for leakage.

RECORDS

§ 197.480 Logbooks.

The person-in-charge of a vessel or facility required by 46 U.S.C. 201 to have an official logbook shall maintain the logbook on form CG-706. The person-in-charge of a vessel or facility not required by 46 U.S.C. 201 to have an official logbook shall maintain, on board, a logbook for making the entries required by this subpart. The diving supervisor conducting commercial diving shall maintain a logbook for making the entries required by this subpart. The Diver Conducting a commercial diving operation shall maintain a log box as prescribed in § 197.406 § 197.482 Logbook entries. The person-in-charge shall insure that the following information is recorded in the logbook for each commercial diving operation: Date, time, and location at the start and completion of dive operations. Approximate underwater and surface conditions (weather, visibility, temperatures, and currents). Name of the diving supervisor. General nature of work performed. The person in charge will see that a written emergency contingency plan has been posted complete with- The dive site location The nearest emergency facility: Location. Radio channel and or Phone number Name of the Person in Charge Name of the Dive Supervisor Owner Address Phone Contractor Address Phone The United States Coast Guard (local district) Location. Radio channel and or Phone number A description of the procedure to be implemented in the event of an emergency

The diving supervisor shall insure that the following information is recorded in the logbook for each commercial diving operation:

Date, time, and location at the start and completion of dive operations.

Approximate underwater and surface conditions (weather, visibility, temperatures, and currents).

Names of dive team members, diving supervisor (s) including diver certification numbers.

General nature of work performed.

Repetitive dive designation or elapsed time since last hyperbaric exposure if less than 24 hours for each diver.

Diving modes used.

Maximum depth and bottom time for each diver.

Name of person-in-charge.

For each dive the breathing gases and decompression table designations used,

When decompression sickness or gas embolism is suspected or symptoms are **evident**- The name of the diver; and A description and results of treatment

For each fatality or any diving related injury or illness that requires professional medical assistance The date; Time Circumstances; and Extent of any injury of illness.

The diving supervisor shall insure that the following is recorded in the logbook for each diving operation deviating from the requirements of this subpart;

A description of the circumstances leading to the situation. The deviations made. The corrective action taken, if appropriate, to reduce the possibility of recurrence.

the diving supervisor shall insure that a record of the following is maintained

The date and results of each check of the medical kits.

The date and results of each test of the air compressor.

The date and results of each check of breathing mixtures.

The date and results of each check of each breathing supply system.

The date, equipment cleaned, general cleaning, procedure, and names of persons cleaning the diving equipment for oxygen service.

The date and results of each test of the breathing supply hoses and system.

The date and results of each inspection of the breathing gas supply system.

The date and results of each test of depth gages and timekeeping devices.

The date and results of each test and inspection of each PVHO

The date and results of each inspection of the diving equipment.

The date and results of each test and inspection of pressure piping.

The date and results of each test and inspection of volume tanks and cylinders.

The diving supervisor shall insure that a notation concerning the location of the information required under paragraph (d) is made in the logbook. § 197.484 Notice of casualty.

In addition to the requirements of subpart 4.05 of this chapter and 33 CFR 146.01-20, the person-in-charge shall notify the Officer-in-Charge, Marine Inspection, as soon as possible after a diving casualty occurs, if the casualty involves any of the following: Loss of life. Diving -related injury to any person causing incapacitation for more than 48 hours. Diving-related injury to any person requiring hospitalization for more than 24 hours. The notice required by this section must contain the following: Name and official number (if applicable) of the vessel or facility. Name of the **owner** or agent of the vessel or facility. Name of the person-in-charge. Name of the diving supervisor. Description of the casualty including presumed cause. Nature and extent of the injury to persons.

197.486 Written report of casualty.

The person-in-charge of a vessel or facility for which a notice of casualty was made under § 197.484 shall submit a report to the Officer-in-Charge, marine Inspection, as soon as possible **after** the casualty occurs, as follows: On Form CG-2692, when the diving installations on a vessel. Using a written report, in narrative form, when the diving installation is on a facility. The written report must contain the information required by § 197.484. The report required by this section must be accompanied by a copy of the report required by § 197.410 (a)(9) when decompression sickness is involved. The report required by this section must include information relating to alcohol or drug involvement as required by §4.05-12 of this chapter.

197.448 Retention of records after casualty The owner, agent, or person-in-charge of a vessel or facility for which a report of casualty is made ~~under §197.484~~ shall retain all records **onboard** that are maintained on the vessel or facility and those records required by this subpart for 6 months after the report of casualty is made or until advised by the Officer-in-Charge, Marine Inspection, that records need not be retained on board. The records required by paragraph (a) of this section to be retained on board include, but are not limited to the following: All logbooks required by § 197.480. All reports required by § 197.402(a)(2)(ii), § 197.404(a)(4), 197.410(a)(9). The owner, agent, person-in-charge, or diving supervisor shall, upon request, make the records described in this section available for examination by any Coast Guard official authorized to investigate the casualty.

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Please read the CDSO proposal summary and then fill out the questionair

We request your comments and any data or information that would answ questions, as well as comment on any other part of the current regulation revised.

In responding to a question, please explain your reasons for each answer carefully weigh the consequences and impacts of any future requirement propose.

In addition, please provide relevant data (accident data would be particul possible, that will support the need for a revision to the commercial divin regulations.

Name:

Address:

Form fields for Name and Address with navigation arrows.

1. Based on your review of the ADC submission to the Coast Guard, which revi Coast Guard include in its proposed rule, or revise and include in a proposed r

2. Should the Coast Guard adopt the ADC Consensus Standard or any other standards? If so, which ones and why?

Form fields for question 2 with navigation arrows.

3. Is ADC's cost estimate of \$300,000 for implementing their proposed regulat reasonable? If not, please explain why and if possible provide your own cost e

Form fields for question 3 with navigation arrows.

4. a) What definitions 'in the existing regulations should be updated or deleted?

Form fields for question 4a with navigation arrows.

b) Are there other terms that the Coast Guard should define in the regulatio explain.



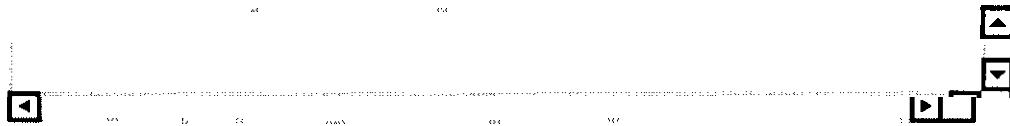
5. Should dynamically positioned vessels (vessels with installed system that th maintains the position of the vessel within a specified tolerance by controlling o to counter the forces of the wind, waves and currents) and remotely operated v addressed in the regulations? If so, what particular issues should the Coast Gu regulate?



6. Should the Coast Guard propose regulations concerning diving in contamina how should it be addressed?



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



8. Should the Coast Guard propose regulations concerning bell bounce (a divi whereby a diving bell is used to transport divers under atmospheric pressure to subsequently to transport the divers back to the surface in a decompression st should it be addressed?



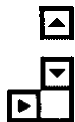
9. Should the Coast Guard propose regulations concerning saturation diving in yes, how should it be addressed?



10. Should the Coast Guard propose regulations concerning requirements for equipment at the dive site? If yes, how should it be addressed?



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



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

a) What courses or information should the training include?



b) What should be the minimum number of hours required for training?



c) What would be the benefits of establishing minimum training requirements?



d) Should training organizations or providers meet certification requirements? If an organization should certify the training organizations or providers?



13. Should diving supervisors be licensed by the Coast Guard to ensure compliance with regulations? Please explain the reason for your choice and, if your answer is "yes", provide examples, if possible, of situations in which a licensed diving supervisor would be needed.



14. If you are a small entity as defined under "Small Entities" and believe you need to make potential changes to the commercial diving regulations, please explain what compliance options the Coast Guard should consider and how these options would burden on small entities, while promoting commercial diving safety.



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