

DEPARTMENT OF INDUSTRIAL RELATIONS  
Occupational Safety and Health Standards Board  
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NOTICE OF PROPOSED MODIFICATIONS TO  
CALIFORNIA CODE OF REGULATIONS

TITLE 8: Sections 6051, 6056, and 6057  
of the General Industry Safety Orders

**Commercial Diving Operations**

Pursuant to Government Code Section 11346.8(c), the Occupational Safety and Health Standards Board (Standards Board) gives notice of the opportunity to submit written comments on the above-named standards in which modifications are being considered as a result of public comments and/or Board staff consideration.

On February 20, 2020, the Standards Board held a Public Hearing to consider revisions to Title 8, Sections 6051, 6056, and 6057, of the General Industry Safety Orders. The Standards Board received written and oral comments on the proposed revisions. The standards have been modified as a result of these comments and Board consideration. Modifications are now proposed for subsection 6056(a)(2)(B).

A copy of the full text of the standards as originally proposed, with the modifications clearly indicated, is attached for your information. Anything that has been added is indicated by a bold underline, and anything that has been removed is indicated by a bold strikeout. In addition, a summary of all comments regarding the original proposal and staff responses is included.

Pursuant to Government Code Section 11347.1, notice is also given of the opportunity to submit comments concerning the addition to the rulemaking file of the following document relied upon:

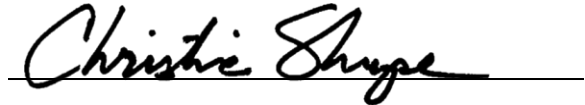
- United States Court of Appeals, Fifth Circuit. *Houston Aquarium, Inc. v. Occupational Safety and Health Review Commission; Eugene Scalia, Secretary, U.S. Department of Labor*. No. 19-60245. Document: 00515490818. Filed July 15, 2020  
<http://www.ca5.uscourts.gov/opinions/pub/19/19-60245-CV0.pdf>.

Any written comments on these modifications or documents relied upon must be received by 5:00 p.m. on *October 23, 2020* at the Occupational Safety and Health Standards Board, 1017 L Street, PMB #254, Sacramento, California 95814-3805 or submitted by fax to (916) 274-5743 or e-mailed to [oshsb@dir.ca.gov](mailto:oshsb@dir.ca.gov). Please confine your comments to the modification of the text and the additional document relied upon. This proposal will be scheduled for adoption at a future business meeting of the Standards Board.

The Standards Board's rulemaking files on the proposed action are open to public inspection BY APPOINTMENT Monday through Friday, from 8:00 a.m. to 4:30 p.m., at the Standards Board's office at 2520 Venture Oaks Way, Suite 350, Sacramento, California 95833. Appointments can be scheduled via email at [oshsb@dir.ca.gov](mailto:oshsb@dir.ca.gov) or by calling (916) 274-5721.

Inquiries concerning the proposed changes may be directed to the Executive Officer, Christina Shupe, at (916) 274-5721.

OCCUPATIONAL SAFETY AND HEALTH  
STANDARDS BOARD

A handwritten signature in black ink that reads "Christina Shupe". The signature is written in a cursive style and is positioned above a solid horizontal line.

Christina Shupe, Executive Officer

Date: *October 2, 2020*

**PROPOSED MODIFICATIONS**  
(Modifications are indicated in bold,  
underline wording for new language,  
and bold, ~~strikeout~~ for deleted language.)

**STANDARDS PRESENTATION  
TO  
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

§6051. Definitions.

As used in this Article, the listed terms are as follows:

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**Diving Mode.** A type of diving requiring specific equipment, procedures and techniques (SCUBA, surface-supplied air, or mixed gas).

Film and TV Diving. Underwater operations associated with the production of feature films, television, natural history visuals, corporate videos, and photographic stills, which are not an integral part of an on-going construction, demolition, or maintenance job.

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~~HOOKAH~~**Hookah Diving.** A type of shallow water surface-supplied diving where the diver uses the second stage of a SCUBA regulator connected to a non-return valve and hose to a surface air source.

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**No-Decompression Limits.** The depth-time limits of the “no-decompressions limits and repetitive dive group designations table for no-decompression air dives.” U.S. Navy diving Manual or equivalent limits which the employer can demonstrate to be equally effective.

Positive Buckling Device. A device used to attach a safety harness to the diver, which is designed to prevent strap pull-through and accidental release by the diver. Unbuckling the device shall not be possible by a single action.

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~~Technical Diving.~~ All diving other than scientific or commercial diving performed by employees in making or performing observations, measurements, adjustments, underwater photography or special effects and related activities, etc., which require technical expertise and are not an integral part of an ongoing construction, demolition, repair, maintenance, shipbuilding, shipbreaking, or ship repair job.

**STANDARDS PRESENTATION  
TO  
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

Technical Diving. Diving other than scientific or commercial diving, which requires technical expertise and is not an integral part of an on-going construction, demolition, repair, maintenance, shipbuilding, shipbreaking, or ship repair job. Such activities include, but are not limited to, making or performing observations, measurements, and adjustments, film and TV diving, and zoo and aquarium exhibit diving.

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Working Pressure. The normal pressure at which the system is designed to operate.

Zoo and Aquarium Exhibit Diving. Diving performed inside zoo and aquarium exhibits and holding tanks for the purpose of science, education, or animal care, which requires technical expertise and is not an integral part of an on-going construction, demolition, or maintenance job.

NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

**STANDARDS PRESENTATION  
TO  
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

§6056. Basic Operation Procedures.

(a) SCUBA Diving (Compressed Air and Mixed Gas).

(1) Limits:

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(C) SCUBA diving shall not be conducted against currents exceeding one (1) knot unless line-tended.

EXCEPTION to 6056(a)(1)(C): Technical divers performing film and TV diving operations in controlled environments can artificially increase currents above one (1) knot provided the artificial current can be reduced to one (1) knot or less in case of an emergency and the dive team is trained to work in such conditions.

(D) SCUBA diving shall not be conducted in enclosed or physically confining spaces unless line-tended.

EXCEPTION to 6056(a)(1)(D): Technical divers performing film and TV diving operations in controlled environments can work in enclosed or physically confined spaces without being line-tended provided the dive team is trained to respond to an emergency in such conditions.

(2) Procedures.

(A) A standby diver shall be available while a diver is in the water; ~~or~~

(B) A diver shall be line-tended from the surface or accompanied by another SCUBA diver in the water where they shall remain in effective communication with each other **and be able to render immediate assistance in case of an emergency** throughout the diving operation.

~~(C) A SCUBA diver shall be accompanied in the water by another SCUBA diver and they shall remain in effective communication with each other throughout the diving operation.~~

EXCEPTION to 6056(a)(2): Technical divers shall be deemed to be in compliance with subsection 6056(a)(2) provided the employer complies with either (A) or (B).

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PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

(~~DC~~) A diver shall be stationed at the underwater point of entry when diving is conducted in enclosed or physically confining spaces; or an orientation line shall be used in enclosed spaces where there is a probability of entrapment or disorientation.

(~~ED~~) If loss of effective communication occurs, within a buddy team, all divers shall surface and re-establish contact.

(~~FE~~) Each diver or buddy team shall have an adequate depth gauge and underwater time keeping device.

(~~GF~~) Each diver shall have a submersible pressure gauge for monitoring SCUBA tank pressure, capable of being monitored by the diver during the dive.

(~~HG~~) The dive shall be terminated while there is still sufficient tank pressure to permit the diver to safely reach the surface (including decompression time if a decompression chamber is not provided at the dive site).

(~~H~~) Each diver shall have the capability of achieving and maintaining positive buoyancy.

(~~JI~~) A diver-carried reserve breathing gas supply shall be provided for each diver consisting of:

1. A manual reserve (J valve); or
2. An independent reserve cylinder with a separate regulator or connected to the underwater breathing apparatus.

(~~KJ~~) The valve of the reserve breathing gas supply shall be in the closed position prior to the dive.

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(5) ~~HOOKAH~~Hookah.

(A) Hookah diving shall be permissible only during technical diving operations.

(~~AB~~) ~~HOOKAH~~Hookah divers shall comply with all SCUBA diving procedures in this section except for the depth limitations contained in Section 6056(a)(1). ~~HOOKAH~~Hookah diving shall not be conducted at depths greater than ~~190 fsw (58 msw)~~ 30 fsw (9 msw).

(C) A non-return valve shall be connected to the mask, helmet, or second stage of the SCUBA regulator.

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PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

(D) When using hookah, each diver shall wear a safety harness with:

1. A positive buckling device;

2. An attachment for the primary gas hose to distribute the pull force of the line and to prevent strain on the mask, helmet, or second stage regulator; and

3. A lifting point to distribute the pull force of the line over the diver's body.

~~(BE)~~ Divers using the ~~HOOKAH~~hookah mode shall be equipped with a regulator and an independent reserve breathing gas supply sufficient to return to the surface ~~and regulator.~~

~~(CF)~~ Each ~~HOOKAH~~hookah diver shall be hose-tended by a separate dive team member while in the water.

~~(DG)~~ The ~~HOOKAH~~hookah breathing gas supply shall be sufficient to support all ~~HOOKAH~~hookah divers in the water for the duration of the planned dive, including decompression.

(H) Second stage regulators used for hookah shall be designed to function within the delivered breathing gas supply pressure at the diver's working depth.

(b) Surface-Supplied-Air-Diving.

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(2) Procedures.

(A) A separate dive team member shall continuously tend each diver in the water;

(B) Continuous two-way voice communications between the diver and the surface shall be maintained for each surface-supplied diver in the water.

(C) A ~~standby~~ diver equipped with surface-supplied gear, or a pair of SCUBA divers, shall hose-tend at the underwater point of entry when diving is conducted in enclosed or physically confining spaces.

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NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.



**STANDARDS PRESENTATION  
TO  
CALIFORNIA OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD**

PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

§6057. Equipment Procedures and Requirements.

(a) Recordkeeping. Each equipment modification, repair, test, calibration or maintenance service shall be logged including the date and nature of work performed, serial number of the item and the name of the person performing the work for the following equipment:

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(b) SCUBA.

(1) Regulators. Regulators shall be submitted to functional test every six months at which time, at a breathing rate of 15 breaths per minute the regulator must have an exhalation pressure not to exceed 3 inches of water nor a negative inhalation pressure not to exceed minus 3 inches of water.

(2) SCUBA ~~€~~Tanks.

(A) SCUBA tanks shall be designed, constructed and maintained in accordance with the applicable provisions of Section 454, Unfired Pressure Vessel Safety Orders, Title 8, California Administrative Code;

(B) SCUBA tanks ~~must~~shall be hydrostatically tested in accordance with DOT standards.

(C) SCUBA tanks ~~must~~shall have an internal visual inspection at intervals not to exceed 12 months.

(D) SCUBA tank valves shall be functionally tested at intervals not to exceed 12 months.

(3) Submersible Pressure Gauges. Submersible pressure gauges shall be tested against a master gauge at intervals not to exceed six months.

(4) Buoyancy Compensators.

(A) A dry suit or other variable volume ~~buoyancy~~buoyancy compensation device shall be equipped with an exhaust valve.

(B) Buoyancy compensation devices shall be functionally inspected at intervals not to exceed six months.

**STANDARDS PRESENTATION**  
**TO**  
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PROPOSED STATE STANDARD,  
TITLE 8, DIVISION 1, CHAPTER 4

(5) Submersible Depth Gauge. Each depth gauge shall be tested or calibrated every six months and when there is reasonable cause to believe a discrepancy exists.

(6) Weight Belts and Harnesses. Weight belts and harnesses used by SCUBA divers shall be capable of quick release.

(7) Underwater Breathing Masks and Helmets. Underwater breathing masks and helmets used ~~at~~for SCUBA ~~must~~shall meet the requirements for the same equipment used in the surface supplied mode.

(c) Surface Supplied Diving.

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NOTE: Authority cited: Section 142.3, Labor Code. Reference: Section 142.3, Labor Code.

## **SUMMARY AND RESPONSE TO COMMENTS**

## SUMMARY AND RESPONSE TO WRITTEN AND ORAL COMMENTS

### I. Written Comments

Ms. Amber Rose, CIH, Area Director, United State Department of Labor, Occupational Safety and Health Administration (OSHA), Region IX, by letter dated February 4, 2020.

#### Comment:

Ms. Rose states that the proposed occupational safety and health standards do not appear to be commensurate with the federal standard. Specifically:

1. OSHA does not recognize “Technical Diving”, only Commercial and Scientific Diving as defined in 29 CFR Subpart T. The use of the term is not prohibited, but the regulations must still be as effective as the federal standard.
2. OSHA does not consider the term “effective communication” in Section 6056(a)(2)(B) to be as effective as the comparable standard 29 CFR 1910.424(c)(2) term “continuous visual contact”.
3. OSHA does not consider Section 6056(a)(2) on hookah diving as effective since it is defined as surface-supplied air diving and OSHA requires the ability to communicate with this method.

#### Response:

**Item 1.** The Board appreciates the comment, but rejects the assertion that the proposed definition and requirements for technical diving are not at least as protective as federal regulations.

The proposed definition for technical diving in Article 152 is intended to fill a void that exists in federal regulations between traditional construction commercial diving and scientific diving. The proposed definition more accurately reflects occupational diving in specialized environments and therefore more adequately protects divers engaged in the practice. Federal standards, written more than 40 years ago, are designed to protect employees engaged in underwater drilling and construction, whose activities include such tasks as placing or removing heavy objects, pipeline inspection, construction, demolition, cutting or welding, or the use of explosives.

By definition, technical divers perform tasks which are not part of an on-going construction, demolition, repair, maintenance, shipbuilding, shipbreaking, or ship repair job. Instead, their activities involve making or performing observations, measurements, and adjustments, film and TV diving, and zoo and aquarium exhibit diving.

In support of this distinction, the Fifth Circuit Court of Appeals published a July 15, 2020, decision, reversing a ruling by the Occupational Safety and Health Review Commission, where

the Commission ruled that cleaning and feeding dives at the Houston Aquarium were subject to the requirements of the federal Commercial Diving Operations (CDO) regulations<sup>1</sup>. The decision includes the following finding:

The regulatory history [of the CDO regulation] as a whole highlights that OSHA’s purpose in creating the CDO standard was to improve workplace safety for divers working on dangerous tasks such as construction and drilling, which are not present at the Aquarium. OSHA discerned that institutions like the Aquarium, which can achieve a low rate of, or no accidents by self-regulation, did not require regulation under the CDO standard. (Page 12.)

Further, the decision states that “there is evidence that adding **the additional safety equipment required under the CDO standard could make the divers and animals less safe** in the Aquarium environment.” (Page 13, emphasis added.) Although the decision focuses on the differences between scientific and commercial diving operations, technical diving operations are also “clearly distinguishable from any of the listed activities, which are typically associated with construction and industrial work.” (Page 11.)

The Board asserts that the hazards of a diving operation are based upon the nature, depth, and environment of the task being performed, as well as the training of the person performing the task. The existence of an alternate set of requirements for scientific divers is proof that different tasks are treated differently by the CDO regulations. Because scientific divers do not perform tasks with the same degree of risk as commercial divers, they are allowed to self-regulate. The tasks performed, not the job classification, determine the hazards and the necessary precautions to be taken.

By the same reasoning, technical divers perform tasks more closely related to scientific divers and are clearly distinguishable from commercial divers. However, instead of seeking to self-regulate, as many of them could qualify to do as scientists, they are requesting a uniform set of regulations tailored to their specialized, non-construction dive environments. Stakeholder testimony includes decades of dive experience and thousands of hours of underwater practice attesting to the equivalent safety of technical diving when compared to commercial diving.

**Item 2.** In discussions with representatives from federal OSHA on the merits of “effective communication” vs. “continuous visual contact,” both sides cited instances where one term could prove more protective than the other. The discussion resulted in the intent of the requirement being that the companion SCUBA diver required by subsection 6056(a)(2)(B) “be able to render immediate assistance in case of an emergency” to the other diver. As a result of the comment and follow-up discussions, the Board proposes to explicitly require the intent of the federal and state regulations, instead of using the vague term “continuous visual contact.”

**Item 3.** Hookah diving is a necessary diving mode for technical divers and has been performed safely in California since 1980, according to stakeholder testimony. Stakeholders diving in the

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<sup>1</sup> United States Court of Appeals, Fifth Circuit. “Houston Aquarium, Inc. v. Occupational Safety and Health Review Commission; Eugene Scalia, Secretary, U.S. Department of Labor.” No. 19-60245. Document: 00515490818. Filed July 15, 2020, <http://www.ca5.uscourts.gov/opinions/pub/19/19-60245-CV0.pdf>.

specialized environments of zoo and aquarium exhibits assert that the small footprint and minimal equipment requirements of hookah diving are the most safe and effective mode for the small, delicate, specialized environments where animals, corals and humans are in such close proximity. Although some exhibits could fit the additional equipment required by the CDO regulation and the requirements for SCUBA or surface-supplied air diving, in many instances the equipment will not fit safely into the tank or work area and can pose an obstacle in rescuing a diver in the event of an emergency. Similarly, film and TV divers use hookah for camera operators filming in small spaces like swimming pools, where excess equipment can impede camera movement.

In support of hookah diving and the reduction of unnecessary diving equipment in specialized diving environments, the Fifth Circuit Court decision states:

Indeed, the alleged violations with which the Aquarium has been charged were not shown in the record to have safety benefits. OSHA charged the Aquarium with, inter alia, not having a two-way communication system, not having a reserve air supply, and not having a safety harness. The Aquarium's Senior Dive Officer, Todd Hall, testified that Aquarium divers do not need a two-way communication system, because unlike divers who may be in open or murky water or separated by long distances, Aquarium divers can easily see the spotter standing outside of the tank and can communicate using hand signals. Divers also do not need reserve air supplies in the Aquarium's tanks that are a mere 12 or 14 feet deep. If a diver loses his air supply, he can propel himself to the surface in equal or less time than switching to a second air supply. Lastly, divers do not need safety harnesses, which are used for emergency extractions, because the Aquarium uses quick-deploy harnesses when needed. Because of the short distance, divers can be pulled out using these harnesses in less than two minutes. .... Indeed, there is evidence that adding the additional safety equipment required under the CDO standard could make the divers and animals less safe in the Aquarium environment.(Pages 12 and 13.)

The Board is not persuaded by the comment and asserts that the lack of a two-way voice communication system does not affect the overall safety of the dive mode. Although the Fifth Circuit Court decision mentions that a reserve air supply and safety harness "were not shown in the record to have safety benefits" (page 12), California technical divers seek to explicitly require these and other safety measures to ensure adequate employee protections while engaged in hookah diving. The Board asserts that the proposed regulations for technical divers, which are specifically tailored to the specialized environments in which they work, are at least as protective as the CDO regulations when implemented as proposed.

The Board thanks Ms. Rose for her comment and participation in Board's rulemaking process.

Mr. Andrew Solomon, Dive Safety Officer / Boating Safety Officer, California Science Center Foundation, by letter dated February 10, 2020.

Mr. Paul Dimeo, Dive Safety Officer, Aquarium of the Pacific, by letter dated February 12, 2020.

Mr. George Z. Peterson, Director of Dive Programs / Diving Control Board Chairman, Monterey Bay Aquarium, by letter dated February 12, 2020.

Comment:

The commenters were in support of the proposed amendments and urged the Board to adopt the proposed modifications to the regulation.

Response:

The Board thanks the commenters for their comments and participation in Board's rulemaking process.

II. Oral Comments

Oral comments received at the February 20, 2020, Public Hearing in Rancho Cordova, California.

Mr. Andrew Solomon, Dive Safety Officer / Boating Safety Officer, representing the California Science Center Foundation.

Mr. Paul Dimeo, Dive Safety Officer, representing the Aquarium of the Pacific.

Mr. George Z. Peterson, Director of Dive Programs / Diving Control Board Chairman, representing the Monterey Bay Aquarium.

Comment:

The commenters echoed their written comments in support of the proposed amendments and urged the Board to adopt the proposed modifications to the regulation.

Response:

The Board thanks the commenters for their comments and participation in Board's rulemaking process.