

# REGULATORY UPDATE

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## OSHA Commercial Diving Operations Directive - Overview and FAQs

The Occupational Safety and Health Administration (OSHA) recently issued a new [directive](#) for commercial diving businesses. The new directive announced the implementation of intervention and inspection programs aimed to reduce and eliminate workplace hazards found in commercial diving operations. The new directive also provides guidance that will allow OSHA offices to establish and support programs in the commercial diving industry designed to ensure commercial diving operations are in compliance with diving operations standards.

This Montgomery & Graham Regulatory Update provides a brief overview OSHA's new commercial diving operations directive.

### OVERVIEW OF SIGNIFICANT CHANGES

This new directive provides the following significant changes:

- Provides OSHA compliance officers, consultants and other interested government and industry parties with compliance information about supporting interventions involving commercial diving operations and minimizing employee exposure to hazards;
- Lists several answers to commonly asked questions related to commercial diving operations;
- Enhances the standards for the duties and requirements of diver tenders; and
- Updates the instruction regarding no-decompression air dives based a revision to the U.S. Navy Diving Manual.

### COMPLIANCE INFORMATION

The new directive provides guidelines and standards in the following topics for commercial diving operations:

- Qualifications of a dive team;
- SCUBA diving;
- Safe practices manual;
- Surface-supplied air diving;
- Pre-dive procedures;
- Mixed-gas diving;
- Procedures during dive;
- Liveboating;
- Post-dive procedures;
- Equipment; and
- Specific operations procedures;
- Recordkeeping requirements.

### COMMONLY ASKED QUESTIONS

The following commonly asked questions represent an abbreviated version of those provided in the new directive:



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*Question #1: Are diving operations involving the underwater inspection of bridges and other submerged structures considered to be scientific diving, and if so, what standards apply to these divers?*

Answer: The underwater inspection of bridges and other structures by divers is governed by OSHA regulations for commercial diving. The exemption from OSHA's commercial diving standard for scientific diving would not be applicable to underwater inspections of bridges or other submerged structures.

*Question #2: What are the minimum number of dive-team members required to support air dives using SCUBA equipment and surface-supplied diving equipment, with one diver in the water?*

Answer: Commercial SCUBA air diving with one diver in the water requires a minimum of three dive-team members: a designated person-in-charge, a standby diver and a line-tended diver. Commercial surface-supplied air diving with one diver in the water requires a minimum of three dive-team members: a DPIC and a diver "who shall be continuously tended [by a tender other than the DPIC] while in the water."

*Question #3: What is the minimum number of dive-team members required to support SCUBA diving when two divers are in the water, and when are SCUBA divers required to be line-tended?*

Answer: Commercial SCUBA air diving with two divers in the water requires a minimum of four dive-team members: a designated person-in-charge (DPIC), a standby diver, and two divers.

*Question #4: What commercial diving schools, national diver-training consensus standards, and commercial diving licenses or certifications does OSHA accept as meeting the requirements of qualifications of a dive team?*

Answer: OSHA considers an employer to be in compliance with diving standards when documentation shows that the diver completed training to the appropriate level (such as a surface-supplied air diver certificate, or a surface-supplied mixed-gas diver certificate) at a commercial (private), military, or other federal (such as the Army Corps of Engineers) diving school, or a school accredited by the Association of Commercial Diving Educators (ACDE).

*Question #5: Do the Consensus Standards for Commercial Diving and Underwater Operations published by the Association of Diving Contractors International (ADCI) comply with OSHA and U.S. Coast Guard requirements for commercial diving operations?*

Answer: OSHA recognizes the ADCI Consensus Standards for Commercial Diving and Underwater Operations as meeting the general requirements of 29 CFR 1910.420 for a safe practices manual. For diving-related operational, maintenance, and testing matters that are not addressed by OSHA standards, OSHA recognizes ADCI standards as the best established industry practice.

*Question #6: How is a determination made of a safe or minimum operating pressure for commercial diving surface-supplied equipment?*

Answer: The minimum safe operating pressure for any surface-supplied diving system is dependent upon three principal factors: (1) the depth of the dive; (2) pressure loss through the diving air-supply hose; and (3) the pressure requirements for the diving helmet or mask. Equally important is the flow (volume) of air supplied to the diver.

*Question #7: Are "hookah rigs" (i.e., an air compressor supplying air through a hose directly to the second-stage of a SCUBA regulator) allowed by OSHA standards? Is it acceptable to use the second-stage regulator from a SCUBA regulator assembly approved by the U.S. Navy for a "hookah rig"?*

Answer: Hookah rigs, as described in this question, are not in compliance with the OSHA commercial diving standard because such rigs prohibit diver-to-topside communications, which is a requirement for all surface-supplied diving operations. Further, assembling a hookah rig by using a second-stage regulator from a SCUBA regulator assembly can pose a severe hazard to divers.

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*Question #8: Are employers in compliance with OSHA standards when they rely on employees who own their own diving equipment to maintain this equipment?*

Answer: OSHA supports and encourages employees to maintain, inspect, and ensure the safe operation of the equipment that they own and use in their employers' diving operations. However, these actions do not relieve employers of their responsibilities under OSHA standards to ensure the proper use, maintenance, testing, and other required actions regarding diving equipment used in the course of employment.

*Question #9: When a decompression chamber is not available at the dive location, can employers administer 100 percent oxygen to a diver who experiences decompression sickness or arterial gas embolism while the diver is being transported to a decompression chamber? Can an oxygen mask with a mouthpiece-held demand inhalator valve be used for unconscious patients?*

Answer: Although the use of pure-oxygen treatment for a diving patient may be beneficial, it is not a substitute for recompression treatment. When a diver incurs any diving illness that requires recompression treatment (such as decompression sickness, or arterial gas embolism), the diver must be treated at a recompression facility. Oxygen treatment may be necessary or desired during transport to a recompression facility, but it must never be used as a replacement for recompression treatment when such treatment is required.

*Question #10: Are detector-tube test kits suitable for testing for carbon monoxide, carbon dioxide and oil mist contaminants every 6 months?*

Answer: The use of detector tubes to perform the required sampling is acceptable when the manufacturer's instructions and limitations are followed and employers comply with the recordkeeping. When limitations exist, detector tubes may not be used, and the specified alternative methods (such as laboratory-tested air samples) must be used instead. OSHA encourages employers to send compressor air samples to laboratories periodically for analysis to validate the results of detector-tube testing. OSHA also encourages employers to conduct diver's air sampling more frequently than semiannually.

*Question #11: How long must an employer retain records or documents?*

<b>Record or Document</b>	<b>Retention Period</b>
Safe practices manual	Current document only
Depth-time profile	Until completion of the dive record; or if decompression sickness occurs during the dive, until completion of decompression-procedure assessment
Dive record	1 year; 5 years for records involving decompression sickness
Decompression procedure assessment evaluations	5 years
Equipment inspection and testing records	Current entry or tag, unless the equipment is withdrawn from service (i.e., then no retention requirement)
Hospitalization records	5 years

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*Question #12: 29 CFR 1910.430(b)(2) requires that air compressor intakes be located away from areas containing exhaust or other contaminants. In some smaller compressor systems, the air intake is near the exhaust. How far apart should the air intake and exhaust be from each other?*

Answer: Generally, an upwind horizontal separation of at least twelve feet should be maintained between the air compressor intake and the engine exhaust. In addition, the air intake should be located at least six feet above the ground, deck, or other low-lying area that could collect contaminants that are heavier than air.

*Question #13: Is "free diving" or "breath-hold diving" covered under the new directive?*

Answer: No.

*Question #14: Is an employee under the age of 18 years old permitted to fill SCUBA bottles?*

Answer: Varies state by state.

*Question #15: Is air that is enriched with extra oxygen (O<sub>2</sub>) considered to be a mixed-gas regulated by the Code of Federal Regulations?*

Answer: Yes.

*Question #16: Where can I find information on faulty dive equipment that has been recalled?*

Answer: The [Boating Safety Resource Center](#), sponsored by the U.S. Coast Guard, has this information for recreational boats and equipment (i.e., recalls, product assurance branch, etc.). ADCI routinely issues [safety notices](#) that are posted on their website that may contain product information. In addition, the U.S. Consumer Product Safety Commission maintains a [website](#), organized by hazard type, that lists recalled products.

*Question #17: Is an elevated potable water tank in which diving occurs considered a permit-required confined space?*

Answer: Yes.

## DUTIES AND REQUIREMENTS OF DIVER TENDERS

### *Duties of Diver Tenders*

Generally, diver tenders are required to assist the diver with checking and donning equipment. Additionally, tenders must continuously monitor the diver's umbilical during water entry and exit, continuously tend the diver's umbilical and must stay aware of the diver's depth and location at all times while the diver is in the water. After the dive is complete, a tender must assist the diver in removing all diving equipment and continually monitor the diver after completion of the dive as directed by the diving supervisor. Tenders may not be assigned any other responsibilities during the dive, unless specifically directed to do otherwise by the diving supervisor after being relieved of tender duties by another dive-team member. Several other duties are also detailed in the directive.

### *Requirements of Diver Tenders*

Diver tenders are required in the following situations:

- Divers must be line-tended against currents exceeding one (1) knot (1.689 feet per second, or about 17 feet per 10 seconds).
- Divers must be line-tended when they are in an enclosed or physically confining space, and a diver must be stationed at the underwater point of entry to the enclosed or physically confining space.

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- Divers must be either line-tended from the surface, or accompanied by another diver in the water who is in continuous visual contact with the SCUBA diver during the diving operation.
- Each diver must be continuously tended during surface-supplied air dives of 100 feet of sea water (fsw) or less.
- A separate dive-team member must tend each diver in the water during surface-supplied air dives deeper than 100 fsw, or that exceed the no-decompression limits.
- A separate dive-team member shall tend each diver in the water for all mixed-gas diving.

## NO-DECOMPRESSION AIR DIVES

OSHA also provided commercial diving employers with guidance for no-compression air dives in the following table. Each depth listed in the table has a corresponding no-decompression limit listed in minutes. This limit is the maximum bottom time that a diver can spend at that depth without requiring decompression. Any dive to 25 fsw or deeper that has a bottom time greater than the no-decompression limits provided in this table is a decompression dive, and must comply with the appropriate air decompression table. A repetitive-group designation must be assigned to a diver after every dive.

Depth (fsw)	No-Stop Limit	Repetitive Group Designation															
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Z
10	Unlimited	57	101	158	245	426	*										
15	Unlimited	36	60	88	121	163	217	297	449	*							
20	Unlimited	26	43	61	82	106	133	165	205	256	330	461	*				
25	595	20	33	47	62	78	97	117	140	166	198	236	285	354	469	595	
30	371	17	27	38	50	62	76	91	107	125	145	167	193	223	260	307	371
35	232	14	23	32	42	52	63	74	87	100	115	131	148	168	190	215	232
40	163	12	20	27	36	44	53	63	73	84	95	108	121	135	151	163	
45	125	11	17	24	31	39	46	55	63	72	82	92	102	114	125		
50	92	9	15	21	28	34	41	48	56	63	71	80	89	92			
55	74	8	14	19	25	31	37	43	50	56	63	71	74				
60	60	7	12	17	22	28	33	39	45	51	57	60					
70	48	6	10	14	19	23	28	32	37	42	47	48					
80	39	5	9	12	16	20	24	28	32	36	39						
90	30	4	7	11	14	17	21	24	28	30							
100	25	4	6	9	12	15	18	21	25								

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110	20	3	6	8	11	14	16	19	20								
120	15	3	5	7	10	12	15										
130	10	2	4	6	9	10											
140	10	2	4	6	8	10											
150	5	2	3	5													
160	5		3	5													
170	5			4	5												
180	5			4	5												
190	5			3	5												

\*Highest repetitive group that can be achieved at this depth regardless of bottom time.

If you have questions regarding this important legislative development, please contact your Montgomery & Graham representative.

*Sources: Occupational Health and Safety Administration and U.S. Navy Diving Manual (Revision 6)*

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