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To All Stakeholders in Commercial Diving:

Next year will be my 50th year as a diver and owner of various commercial dive companies. Unfortunately, I continue to hear of more preventable diver fatalities in our industry than in years past. Divers' lives can be saved and serious injuries prevented if federal agencies clarify and revise current regulations that leave too much room for interpretation.

Today, three (3) federal agencies – the Occupational Safety and Health Administration (“OSHA”), the U.S. Coast Guard, and the U.S. Army Corps of Engineers – regulate commercial diving operations in the United States. The regulations promulgated by each agency set forth different standards for the same commercial diving operations. In the interest of preventing needless diver fatalities, current regulations need to be standardized and clearly stated.

For example, all three (3) agencies require that commercial dive teams consist of the following members:

1. A designated person in charge qualified as a diving supervisor;
2. A primary diver with experience to perform the assigned task;
3. A standby diver to aid in rescue of the primary diver;
4. A tender for the primary diver; and
5. A tender for the standby diver.

To properly and safely comply with these requirements, it is important that commercial dive companies only use minimum five (5) man dive teams. Unfortunately, many commercial diving companies attempt to shortcut the above-mentioned regulations with fewer personnel than required. By assigning a dive supervisor to the role of standby diver and/or standby tender, many commercial diving companies mobilize dive projects with three (3) or four (4) man dive teams. While this practice reduces the company's bottom line, increased profitability jeopardizes the lives and safety of their employees.

If federal agencies clarify that all commercial diving companies are required to use minimum five (5) man teams, the commercial dive industry would not only be safer for commercial divers but there would be a level playing field to prevent commercial dive companies from sacrificing the safety of their diving personnel in the interest of increased profits.

Enclosed please find a copy of *A Significant Casualty* by Peter J. Pilkington. This book tells the true story of the untimely death of a young commercial diver, the author's son, Brian Pilkington, during the routine inspection of an oil drilling rig with a three (3) man dive team off the coast of Texas in the Gulf of Mexico. Also enclosed, please find literature with drawings and descriptions that compare three (3) man, four (4) man, and five (5) man dive teams and illustrate why a five (5) man dive team is the minimum dive crew required to safely perform commercial diving operations.

Thank you for your service to our industry. Do not hesitate to contact me with any questions you might have.

Best regards,

Louis E. Schaefer, Jr.
C.E.O.

Enclosures

SAFETY IN COMMERCIAL DIVING PRACTICES:

A COMPARISON OF THREE (3), FOUR (4), AND FIVE (5) MAN DIVE TEAMS

Unfortunately, commercial dive companies in the United States frequently circumvent industry safe practices and existing federal regulations by utilizing three (3) man rather than five (5) man dive teams for diving operations in United States waters.¹ Reducing the number of commercial dive personnel by using three (3) rather than five (5) man dive teams not only endangers divers' lives, but this ever-increasing practice is not in compliance with existing federal regulations including: Occupational Safety and Health Administration ("OSHA") standards², U.S. Coast Guard regulations³, and U.S. Army Corps of Engineers regulations.⁴

To properly and safely comply with existing federal regulations, commercial dive companies must use minimum five (5) man dive teams. Regrettably, in the interest of profits, many commercial diving companies attempt to bypass the above-referenced federal regulations by operating with fewer dive personnel than required by law.

This report illustrates why five (5) man dive teams are the only safe and regulatory-compliant practice for commercial dive operations. A properly manned dive team consists of the following five (5) members:

- 1) A designated person-in-charge (qualified as a dive supervisor);
- 2) A primary diver (experience to perform the assigned task);
- 3) A tender for the primary diver;
- 4) A standby diver to aid the rescue of the primary diver; and
- 5) A tender for the standby diver.

Three (3) man dive teams typically consist of:

- 1) A designated person-in-charge (often not qualified as a dive supervisor);
- 2) A primary diver (often inexperienced in the assigned task); and
- 3) A tender for the primary diver.

When commercial dive companies choose to mobilize three (3) man dive teams as described above, an integral member of the dive team, the designated person-in-charge, must also act as the standby / rescue diver to the primary diver. In an emergency, a three (3) man team is insufficient because, among other reasons, the standby / rescue diver does not have an assigned tender. Additionally, with the designated person-in-charge serving as a standby / rescue diver, no dive supervisor is on deck to communicate with the divers and provide important guidance and directions for rescue efforts.

The following pages illustrate why current industry practices are not sufficient to protect the lives of commercial divers and why five (5) man dive teams are the only option that is safe and regulatory compliant practice for commercial diving operations.

¹ United States waters including, but, are not limited to, the U.S. Gulf of Mexico, the U.S. Outer Continental Shelf, state territorial waters, federal territorial waters, harbors, rivers, inland water bodies, and the inspection of water towers.

² 46 CFR 1910.402; 46 CFR 1910.410(c); 46 CFR 1910.425(c); 46 CFR 1910.426(c); 46 CFR 1910.427(c)

³ 46 C.F.R. 197, et al.

⁴ U.S. Army Corps of Engineers Dive Manual, EM 385-1-1, 15 Sep 08.

PERTINENT OSHA STANDARDS

46 C.F.R. 1910.402 — Definitions

Standby diver: A diver at the dive location available to assist a diver in the water

46 C.F.R. 1910.410(c) – Qualifications of dive team - Designated person-in-charge

- (1) The employer or an employee designated by the employer shall be at the dive location in charge of all aspects of the diving operation affecting the safety and health of dive team members.
- (2) The designated person-in-charge shall have experience and training in the conduct of the assigned diving operation.

46 C.F.R. 1910.425(c) – Surface-supplied air diving - Procedures

- (1) Each diver shall be *continuously tended* while in the water
- (4) For dives deeper than 100 fsw or outside the no-decompression limits:
 - (i) A separate dive team member shall tend each diver in the water
 - (ii) A standby diver shall be available while a diver is in the water

46 C.F.R. 1910.426(c) Mixed gas diving - Procedures

- (1) A separate dive team member shall tend each diver in the water
- (2) A standby diver shall be available while a diver is in the water

46 C.F.R. 1910.427(c) Liveboating - Procedures

- (4) A standby diver shall be available while a diver is in the water

INTRODUCTION TO THE “DIVE CONTROL PANEL” AND DUTIES OF THE DESIGNATED PERSON-IN-CHARGE (DIVE SUPERVISOR)

The “dive control panel” is the nerve center of the commercial dive operations. The “dive control panel” is operated by an integral member of the five (5) man dive team – the designated person-in-charge, often referred to as dive supervisor in the commercial dive industry.

From the “dive control panel,” the dive supervisor ensures that the commercial divers on bottom receive a proper mix of gases, maintain proper radio communications, and monitor depth to ensure proper decompression. At a minimum, the dive supervisor also monitors air from the (1) main dive compressor; (2) standby dive compressor; and (3) high pressure (HP) regulated air bank. In emergency operations, the dive supervisor must also monitor decompression requirements, depth requirements, and may isolate each source of air and switch them accordingly.

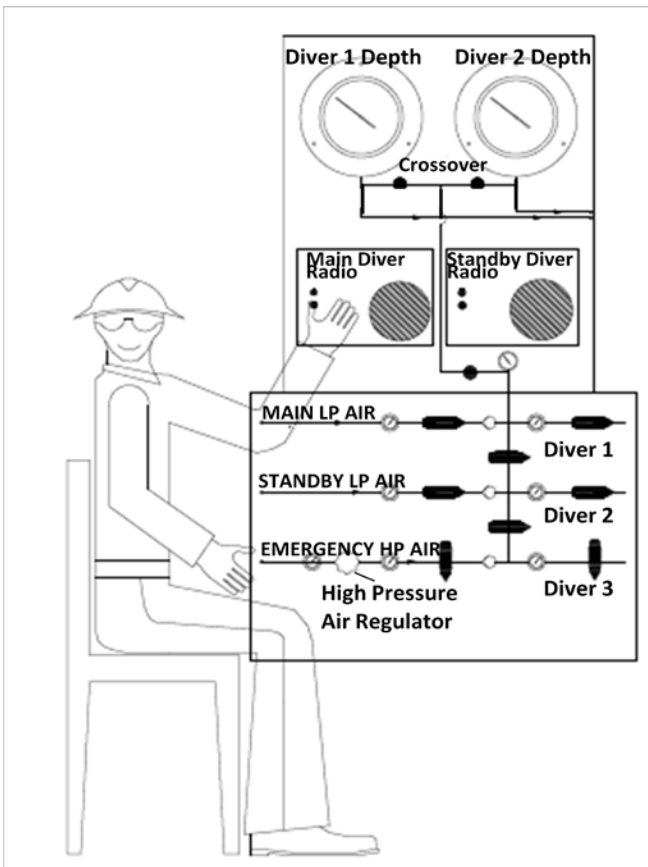


Figure 1 - "Dive Control Station"

To perform the above-required tasks, the designated person-in-charge should be a qualified dive supervisor – well trained in routine and emergency commercial dive operations.⁵

According to existing federal regulations, the designated person-in-charge must meet minimum qualifications of “experience and training” for the assigned diving operations.

As per OSHA regulations regarding dive team qualifications (46 C.F.R. 1910.410(c)), the designated person-in-charge:

- (1) The employer or an employee designated by the employer shall be at the dive location in charge of all aspects of the diving operation affecting the safety and health of dive team members.
- (2) The designated person-in-charge shall have experience and training in the conduct of the assigned diving operation.

Potential Situations that require a dive supervisor’s attention include:

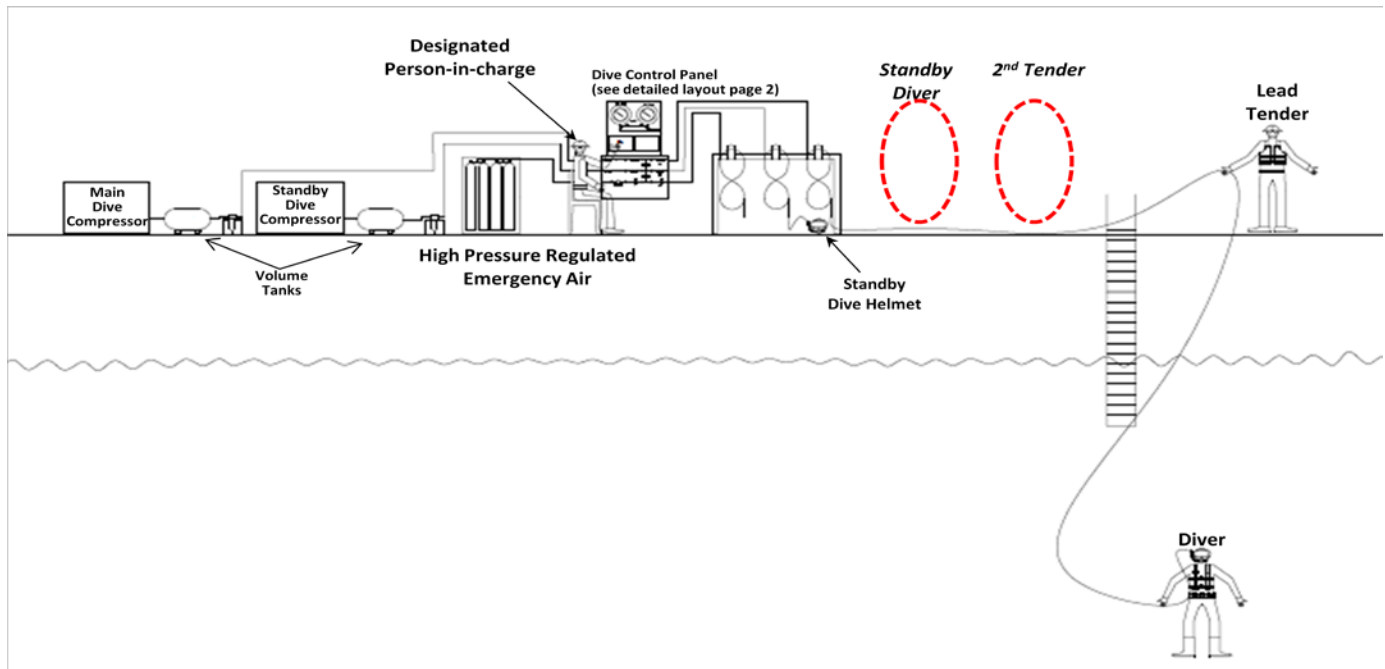
- (1) If the wind is blowing exhaust fumes from other equipment on the dive compressors’ intake, the dive supervisor may switch to HP Air;
- (2) If the main compressor goes down, the dive supervisor can switch to the standby compressor; and/or
- (3) If both the main and standby compressors are down, the dive supervisor can switch to the emergency air bottles.

⁵ See ADC Association of Diving Contractors International, Inc. (“ADC”) description for designated person-in-charge / dive supervisor.

THREE (3) MAN DIVE TEAM (NON-EMERGENCY SITUATION)

When a commercial dive company employs a three (3) man dive team in a non-emergency situation, the designated person-in-charge stays at his post in the “dive control panel” to remain “in charge of all aspects of the diving operation affecting the safety and health of dive team members.” See 46 CFR 1910.410(c).

Figure 2: Three (3) Man Dive Team



When the primary diver is on bottom, the primary tender is responsible for tending the primary diver. Because no additional personnel are available, the tender is also responsible for the duties of the standby tender, including:

- dressing and tending the designated person-in-charge when he doubles as a standby / rescue diver;
- checking, repairing, or refueling air compressors and other equipment;
- draining water from volume tanks and air filters; and
- keeping a watchful eye for other hazards to the diver (including incoming boat traffic, overhead crane lifts, etc.).

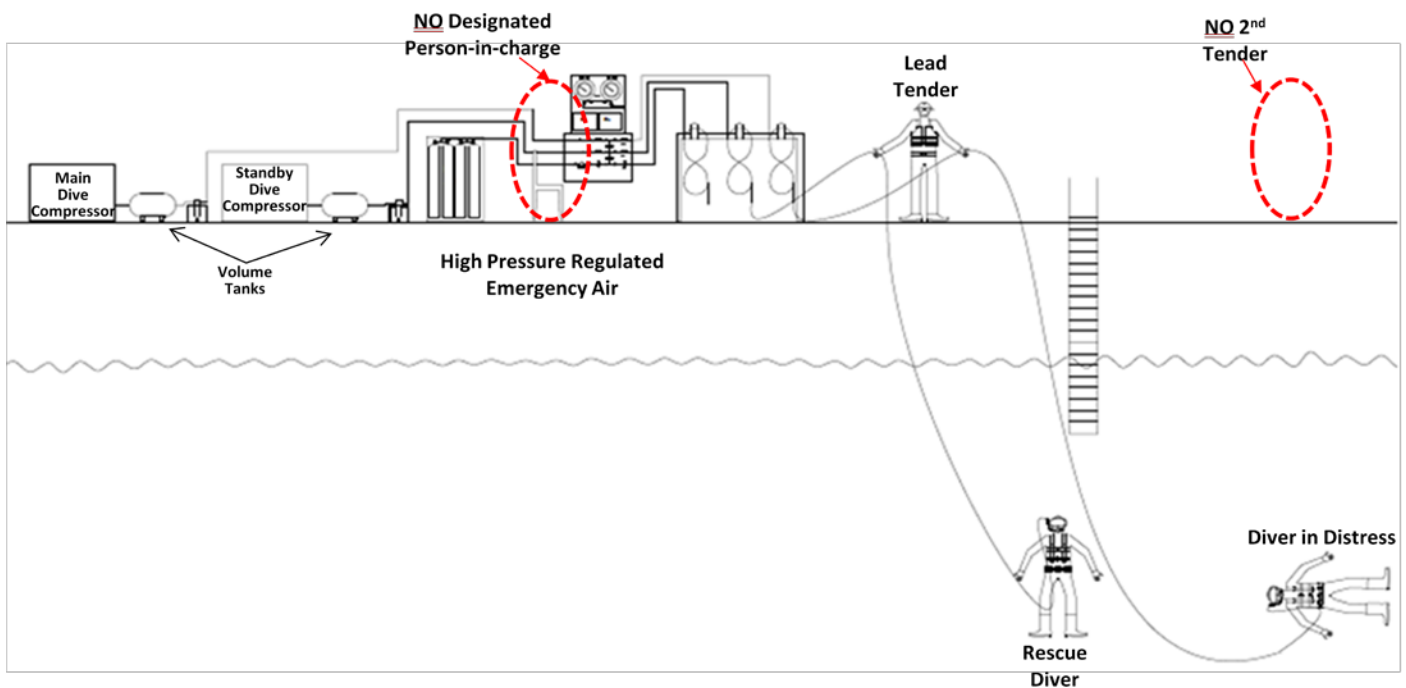
As illustrated above, the three (3) man dive team scenario is not only inadequate for safety but also not compliant with current regulatory standards as a separate dive team member is not available to “continuously” “tend each diver in the water” and a standby diver is not “available while a diver is in the water,” as required by air, mixed gas, and liveboat diving regulations. See 46 C.F.R. 1910.425(c); 1910.426(c); 1910.427(c).

THREE (3) MAN DIVE TEAM (EMERGENCY SCENARIO)

Should the primary diver in a three (3) man dive team become incapacitated or require assistance, the designated person-in-charge must leave the “dive control panel” unattended to serve as the rescue / standby diver. While the designated person-in-charge is on bottom as the standby diver, there is not a member of the dive team on the surface “in charge of all aspects of the diving operation affecting the safety and health of dive team members.” See 46 CFR 1910.410(c). As acting standby diver, the person-in-charge cannot meet his regulatory duties as he spends several minutes retrieving and donning the standby dive helmet; jumping into the water to rescue the incapacitated primary diver; and pulling the diver to the surface and up a 5-10 foot ladder.

With both the person-in-charge and primary diver on bottom, only one dive team member – the tender – remains on the surface to tend both divers, run the dive control panel (which he is not qualified to do), check gauges, tend air compressors, bleed volume tanks, and radio for emergency assistance. These additional duties are impossible for one person and not regulatory compliant – no separate dive team member available to tend the rescue diver while on bottom. See 46 CFR 1910.425(c); 1910.426(c); 1910.427(c). The situation puts the safety and well-being of both divers in jeopardy.

Figure 3: Three (3) Man Dive Team – Emergency Scenario



FOUR (4) MAN DIVE TEAM (NON-EMERGENCY SITUATION)

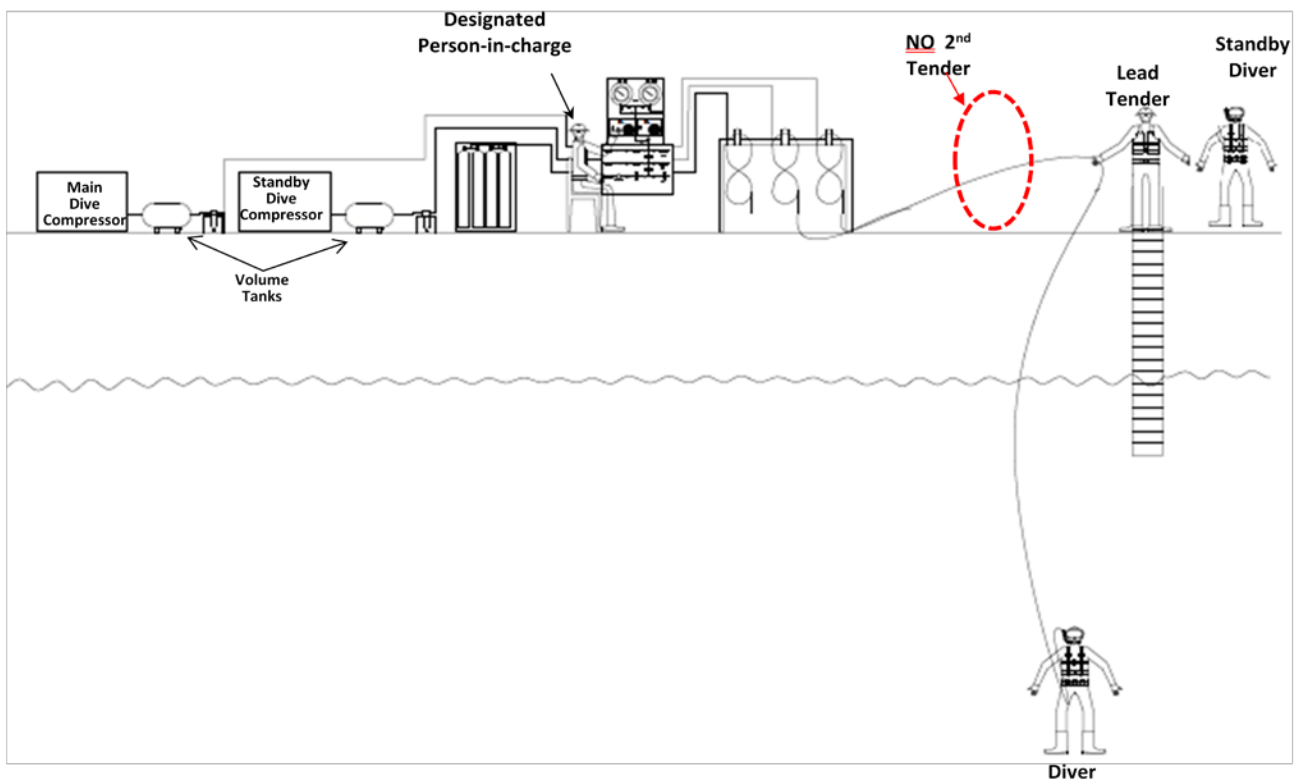
Some commercial dive companies suggest four (4) man dive teams as a compromise to industry safe practices and current federal regulations. However, like a three (3) man team, a four (4) man dive team is dangerous and does not meet current regulations.

With the designated person-in-charge monitoring the “dive control panel” and the standby diver on bottom, a four (4) man team lacks a standby tender to:

- dress and tend the standby diver;
- check, repair, or refuel air compressors;
- drain water from volume tanks and air filters; and
- assist in watching for outside hazards to the diver (incoming boat traffic, overhead crane lifts, etc.)

This practice is not in compliance with the federal regulation that requires separate dive team members to tend each diver in the water and a standby diver available while the primary diver is in the water. See 46 C.F.R. 1910.425(c); 1910.426(c); 1910.427(c) (OSHA standards for surface, mixed gas, and liveboat dives).

Figure 4: Four (4) Man Dive Team – Normal Operations



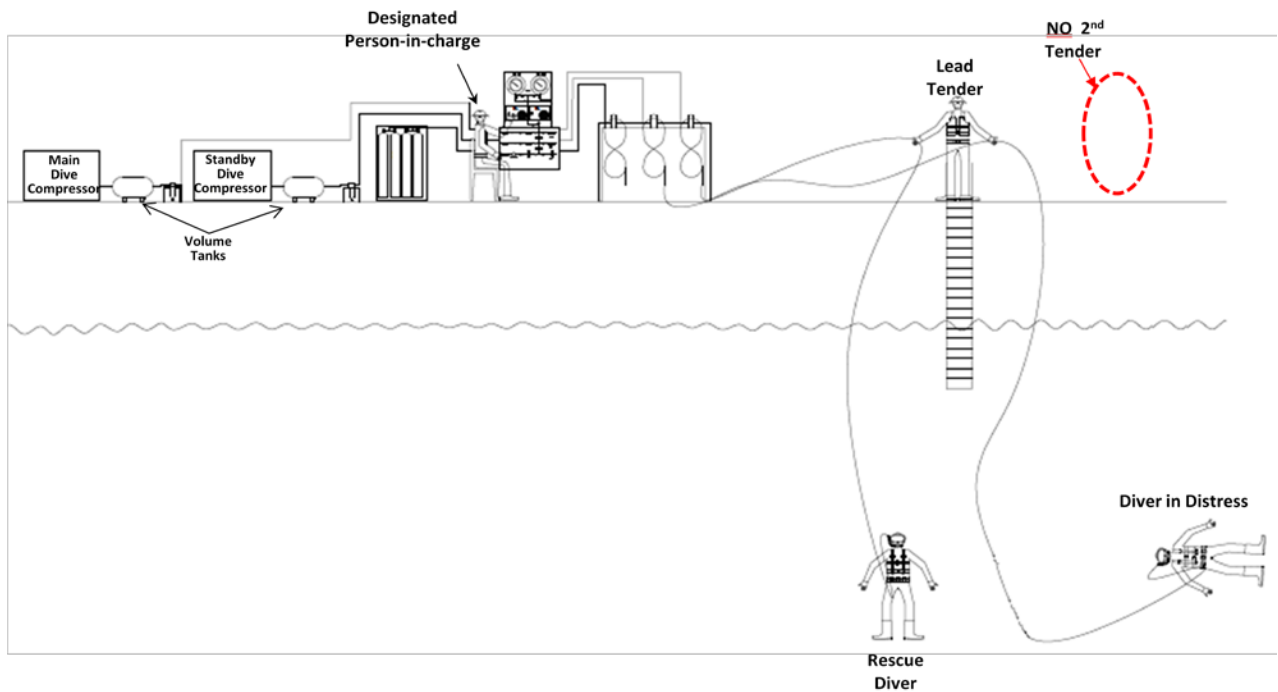
FOUR (4) MAN DIVE TEAM (EMERGENCY SCENARIO)

Should the primary diver become incapacitated or require assistance, the designated person-in-charge will monitor the “dive control panel,” a standby diver will assist the primary diver, but a four (4) man team does not include a second tender to:

- open backup high pressure air bottles in emergency;
- assist the standby/rescue diver in entering the water;
- tend the standby/rescue diver’s hose; and
- assist the injured primary diver out of the water.

This means, in an emergency situation, the designated person-in-charge may have to leave his post to assist the standby diver or assist the injured primary diver out of water – leaving no one to monitor the “dive control panel” and communicate with the divers.

Figure 5: Four (4) Man Dive Team (Emergency Scenario)



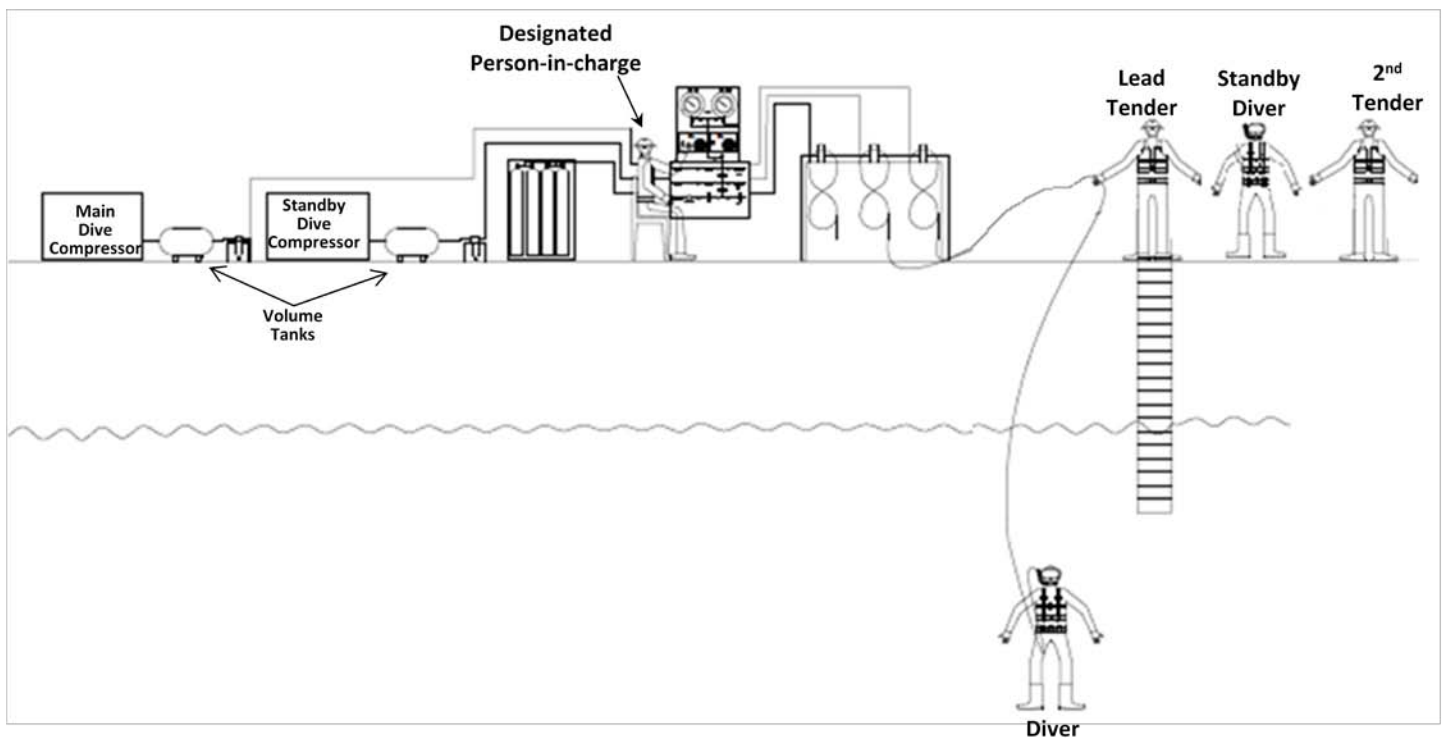
FIVE (5) MAN DIVE TEAM (NON-EMERGENCY SITUATION)

In this scenario, the designated person-in-charge is monitoring the Dive Control Panel, the Standby Diver is available to assist, AND there is a second tender to:

- dress the standby diver;
- assist the standby diver in getting in water;
- check, repair, or refuel air compressors;
- drain water from volume tanks and air filters; and
- assist in watching for outside hazards to the diver (incoming boat traffic, overhead crane lifts, etc.)

As illustrated below, there are sufficient personnel to remain in compliance with federal regulations. The designated person-in-charge will remain at his post and in constant communication with the diver and the person controlling the vessel. If an emergency situation were to occur, the standby diver is available and a second tender is there to assist the standby diver.

Figure 6: Five (5) Man Dive Team (Non-Emergency Situation)



FIVE (5) MAN DIVE TEAM (EMERGENCY SCENARIO)

A five (5) man dive team is the only safe and regulatory compliant practice for all commercial diving activities. In case of an emergency, the designated person-in-charge monitors the “dive control panel,” the standby diver is available to assist the primary diver, the primary diver has an independent tender **AND** there is **a second tender** for the standby diver to:

- assist the rescue diver in getting dressed;
- assist the rescue diver when entering the water;
- tend the rescue diver's hose;
- open backup high pressure air bottles in emergency; and
- help get diver in distress out of the water.

In a five (5) man dive team, the designated person-in-charge remains at his post and in constant communication with the divers and the person controlling the vessel the standby diver is available to assist in rescue operations and a second tender can assist the standby diver.

Figure 7: Five (5) Man Dive Team (Emergency Scenario)

