Analysis of a Diving Accident: Death of a Diver

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Nothing is more tragic than the death or serious injury of a diver, especially when the accident could have been easily prevented. In most diving accident cases where I have consulted, there are usually multiple mistakes made by both the diver and the dive team.

In the following case, we’ll see where the death of a diver was caused by a combination of ignorance, arrogance, and a failure by the diver to recognize unsafe conditions. Like all articles of this type, the facts of the case have been changed to protect the identities of those involved in the incident.

Replacing Pilings on a Wooden Pier on the West Coast

A diver was employed by an inshore commercial diving firm to work on a job where pilings were being replaced on a long wooden pier at a popular west coast port town. The job was proceeding smoothly and the work in 30 feet of water was nearly finished.

On the day of the accident, the weather was unusually cold, even for the Pacific Northwest, with a blast of cold air from Canada dropping daytime temperatures into the low 30s. The diver had several years of diving experience, and the diving supervisor was a former diver from the Gulf of Mexico. The tender had a background in recreational scuba diving, but had never received formal training in commercial diving, or served as a military diver.

The diving company was using a small low-pressure compressor connected to a volume tank. However, instead of using a diver’s air control manifold, they were using a stand-alone diver’s air filtration manifold. The filtration manifold had been modified to include a ball-valve to allow the connection of a scuba cylinder as a back-up air supply. When the filtration manifold was altered, the ball valves used to connect the diver’s umbilical supply were extended outside of the manifold frame, potentially exposing them to damage or accidental closure.

The diver was wearing a dry suit with an attached diving helmet, a weight harness, and no bail-out bottle.

It is the tenders responsibility to continuously tend the diver.

Although OSHA does not require a bail-out bottle for dives at depths less than 100 FSW, the ADCI Consensus Standards wisely mandate the use of a diver-carried reserve for all dives, regardless of depth.

Due to the cold weather, the diving supervisor was sitting in the cab of the company’s pick-up truck in an effort to stay warm and escape from the biting wind. From his position in the truck, he could not see the gauge on the volume tank. Meanwhile, the tender had tied the diver’s umbilical off to the railing at the edge of the pier, while he was engaged in gathering up the equipment to shut the job down for the weekend.

Neither the supervisor nor the tender were wearing any dive gear, they were unprepared to enter the water to assist the diver. There was also no hoisting mechanism for lifting an unconscious or disabled diver, which is required by OSHA regulations.

Another contractor was working at the base of the pier using a forklift to unload materials from a flatbed truck. After running back to the base of the pier, the supervisor was able to secure the assistance of the forklift driver and his equipment.

Once the forklift reached the end of the pier, the forklift driver and his equipment.

Unfortunately, the diver became entangled in the ladder which further delayed the rescue until the tender could climb down the ladder and disengage him from the rung where one of his tools had snagged.

By the time the diver was lifted onto the pier and his helmet was removed, he was no longer breathing and had no pulse. Although the company had an oxygen resuscitation system on hand, they were unable to revive the diver. Despite a short trip to the hospital by ambulance, the young man was pronounced dead by the emergency room doctor.

The accident could have been easily prevented. Like all articles of this type, the facts of the case have been changed to protect the identities of those involved in the incident.
The Lawsuit

The widow of the diver immediately filed a wrongful death lawsuit against the diving company and the owner of the pier on behalf of herself and her three children. She easily won a settlement of over $10,000,000.00 before the case ever went to trial. The diving company filed for bankruptcy and is no longer in business.

Analysis of the Case

It appears that the primary cause of the accident was the modification of the diver's air filtration manifold, which was employed in a manner in which it was never intended to be used. By modifying the manifold, the diving company became responsible for the changes they made to the equipment. In addition, during his deposition the diving supervisor admitted that he believed that when he started bringing up the diver's hose he accidentally dragged the umbilical across the exposed valve, which cut off the diver's air supply.

With the communications box in the cab of the truck, at least twenty feet away from where the diving supervisor was coiling the hose, the supervisor could not have heard the diver if he ever had called for assistance. Either the supervisor or the tender should have been positioned at the edge of the pier, tending the diver's hose and listening to the com box at all times.

As with most diving accidents, there were any number of factors which had they been different, would have prevented this accident from taking place. Undoubtedly, the single most cost effective preventative measure that could have been taken was for every diver not to be equipped with a bail-out bottle. The expense is minimal, and a bottle will rarely if ever impede your work. Yes, there is a possibility that a bail-out bottle could cause you to become entangled with lines or net in certain environments, but the benefits far outweigh the risks.

Lessons to Be Learned for Diving Contractors

During his deposition, the head of the diving company admitted that although his company was a member of the ADCI, he had only joined the association because of the benefits far outweigh the risks.

Previously, the ADCI membership has done an outstanding job in the past ten years. However, if we don't spend the time to learn from the diving accidents that do occur, incidents like this will continue to plague us. The ADCI's Consensus Standards are excellent, but it's the responsibility of every diving company and diver to help ensure we use these standards to avoid compromising our safety.

Lessons to Be Learned for Divers

There are two important lessons to be learned by divers from this incident. First, and foremost, if the company you are working for does not adhere to all aspects of the ADCI Consensus Standards, you need to tactfully point out any deficiencies in their work practices and strive to get them corrected. If the company blatantly disregards the ADCI Consensus Standards and refuses to revise their practices, then you need to look for another place to work. With the shortage of divers today, nobody should have to put up with a company that does not follow safe practices.

Hand-in-hand with the previous recommendation is always to wear a bail-out bottle. There is no good reason for every diver not to be equipped with a bail-out bottle. The expense is minimal, and a bottle will rarely if ever impede your work. Yes, there is a possibility that a bail-out bottle could cause you to become entangled with lines or net in certain environments, but the benefits far outweigh the risks.

OSHA standards require some method of hoisting an unconscious or injured diver out of the water, no matter where you are working. Trying to haul an unconscious diver even a short distance from the water may be impossible without the right equipment or enough manpower.