



FINDINGS OF CONCERN

Sector Charleston

February 8, 2019
Charleston, South Carolina

Findings of Concern 002-19

HAZARDS ASSOCIATED WITH LOW-VISIBILITY DIVING

Purpose: The U.S. Coast Guard issues Findings of Concern to disseminate information related to unsafe conditions that were identified as causal factors in a casualty and could contribute to future incidents. Findings of concern are intended to educate the public, state, or local agencies about the conditions discovered so they may address the findings with an appropriate voluntary action or highlight existing applicable company policies or state/local regulations.

The Incident: An uninspected passenger vessel departed the Broad River Landing near Beaufort, SC with five persons on board to conduct recreational SCUBA diving for fossils on the river bottom. After anchoring at the dive site, all five persons, including the vessel operator, entered the water and descended to the bottom, at an approximate depth of 40 feet for their first of two planned dives. The water visibility was very low, often referred to as “blackwater diving”. After about an hour, four of the divers, including the operator, surfaced independently and boarded the vessel. Three of the divers exchanged air tanks and separately re-entered the water for their second dive. The vessel’s operator remained on board and shortly thereafter, he witnessed the remaining diver surface facedown in the water. Upon recognizing the diver was non-responsive, the operator unclipped the vessel’s anchor line, maneuvered the vessel and entered the water to recover the diver. The operator found the diver unconscious and swam back to the boat with the diver in-tow. The operator was unable to bring the unconscious diver aboard, and the vessel began drifting with the current as the operator effectively lost control of the vessel while holding the diver’s head above water. The vessel drifted down river and under the Broad River Landing Fishing Pier where the operator was able to verbally call out the distress to a pier fisherman who called 9-1-1. The vessel continued to drift down river until a good Samaritan in a recreational vessel arrived and assisted the operator with pulling the diver on board. CPR was initiated by the operator and assumed by emergency responders that arrived on-scene within minutes. The diver was taken to the hospital where he was declared deceased. The deceased was an experienced diver who had completed over 200 dives with at least 60 conducted in low-visibility situations. Based on the inability of the vessel operator to inflate the diver’s BCD at the surface, and the absence of a weight belt, it is believed the diver exhausted his air supply while on the bottom and attempted an emergency ascent. The other three divers remaining at the dive site were recovered by emergency response vessels.

Contributing Factors and Analysis: The Coast Guard investigation revealed multiple contributing factors that led to this incident, which if addressed may have prevented it. In particular, the lack of use of a “buddy system” while diving in low-visibility with strong currents made it challenging to accurately account for all divers. Additionally, no designated crew remained on board the vessel while divers were underwater nor did the vessel’s configuration have adequate means to recover an unconscious person from the water. A lack of training and preparation on how to effectively recover an unconscious person also delayed the initiation of potentially



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critical first aid to the victim. Lastly, adequate preplanned emergency procedures were not established or executed when the victim was spotted facedown in the water. These factors, when unaddressed, create elevated risk.

Findings of Concern: Coast Guard Investigators have identified the following measures implemented by owner(s)/operator(s) of similar vessels in similar service to mitigate the risks associated with the above-identified contributing factors:

- **Use of a Buddy System:** Implement a “buddy-system” when conducting dive operations to ensure enhanced accountability of all divers. Maintaining partner contact throughout the entire dive including during entry and ascent, is advisable; one method involves employing “buddy-lines” with prearranged signals.
- **Planning and Mitigation:** Plan, assess, and continually monitor the unique risks associated with low-visibility and/or high-current underwater environments. Refer to the most current tide charts and current tables and account for heavy rainfall when planning a dive.
- **Crew and Equipment:** Designate a trained crewmember to remain on board the vessel to monitor dive participants and assist with recovery is a best practice. This is particularly important for uninspected passenger vessels that are not subject to annual Coast Guard inspections or man-overboard drills. If necessary, implement and maintain equipment on board that can be used to recover persons from the water such as backboards, lifts, or slings. Ensure any lifting equipment is adequately rated for the weight of the heaviest diver. Additional equipment such as a redundant air supply and deployable surface marker is highly recommended.
- **Emergency Procedures:** Always conduct a safety brief including emergency procedures to participants before embarking on any dive operation. Procedures should consider a diver recall of all remaining divers.
- **Operational Awareness:** Never assume an experienced diver will be safe or medically suitable without supervision or safeguards in place. Development of specific training and/or certification for low-visibility diving could help educate and prepare divers for the unique risks and challenges that associated with blackwater diving.

Closing: These findings of concern are provided for informational purpose only and do not relieve any domestic or international safety, operational, or material requirements. For any questions or comments please contact Sector Charleston’s Investigations Department by phone at (843) 740-3187 or by email at Bryan.D.Johnson@uscg.mil.