

### **SUMMARY AND OPINION:**

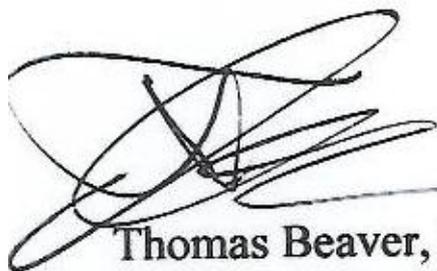
Robert Stewart is a 37 year old, experienced diver and documentary filmmaker who was working on a documentary film at the time of his death. The location was the Queen of Nassau wreck 3 miles from Alligator Lighthouse and 5 miles from Islamorada in the Florida Keys. The depth is approximately 222 feet. On the day of his death, Robert Stewart and his instructor Peter Sotis had completed 2 dives on the wreck and found the conditions unsuitable for filming. It was decided that they would try the project again at another time. Before leaving the wreck they made a final dive with the purpose of recovering a grappling hook, which had been fixed to the wreck. The dive was planned to be of short duration lasting only a few minutes. The dive went as planned with both divers surfacing and, reportedly, giving the "okay" signal. Peter Sotis boarded the support vessel and immediately had a medical event, which he later described as "I passed out". He was treated with oxygen, and quickly recovered. Requiring no further treatment without additional symptoms. However, while the attention of the crew was focused on Mr. Sotis, Mr. Stewart was not able to board the vessel and slipped beneath the surface of the water. The United States Coast Guard was notified and began search operations. Additionally, the dive boat owned by the Horizon Divers dive shop independently and autonomously performed a search. Personnel from the Key Largo Fire Rescue Dive Team provided support staff for the Horizon Divers operation. to recover the body. After recovery, the body of Robert Stewart was transferred to a USCG vessel and transported to the USCG station on Islamorada where the Medical Examiner took jurisdiction. Both divers were using essentially the same equipment with the same electronics and

algorithm. Both divers had the same dive history and presumably the same gas mixtures. Both divers had medical events. The USCG and the District 16 Medical Examiner conducted the subsequent investigation jointly. The USCG obtained a warrant and seized the dive equipment from Peter Sotis. The Medical Examiner removed the dive gear from the body of Robert Stewart. A friend of Robert Stewart gave a third set of dive gear to the Coast Guard. All three sets of gear were transported to the United States Navy Experimental Dive Unit (NEDU) in Panama City, Florida for evaluation. The NEDU personnel were able to access the onboard computers and electronic recording devices as well as test the equipment for function and analyze the residual gas. The equipment evaluation makes a number of points significant to the cause, manner and mechanism of death including:

1. Rob Stewart's "bail-out cylinder had a level of Carbon Dioxide 18% above the purity specification.
2. The residual onboard diluent gas supply was 735psig.
3. The onboard oxygen supply was zero.
4. The Dive Surface Valve (DSV) was in the "open" position as received.
5. The User-Configurable Gradient Factors were configured at 90/90
6. The CC He fraction entered in the Near Eye Remote Display (NERD) and Petrel Dive computers for "Gas Mixture 2" was set at 20%. This value is significantly different than the 51.5% detected by gas analysis.
7. Trapped gas in the lift bag contained 10% O2 and 50% He.
8. The Marine Rescue GPS Transponder, as received, was nonfunctional due to a flooded battery compartment.
9. The FO2 detected in the diluent gas supply indicates the gas mixture was hypoxic from the surface to a depth of 18fsw.
10. The difference in Helium content between dive computer settings and the diluent gas supply would result in different decompression schedules being computed for each dive. This would effect the probability of DCS on any of the incident dives. It should be noted that Mr. Stewart did not violate the decompression schedule provided by the dive computers.
11. Although the computer logs indicate that both Mr. Sotis and Mr. Stewart made controlled descents and ascents on each of the three dives, the ascent rates exceeded standards.
12. The steep descent rate and the absence of any fluctuations recorded by the Petrel Dive Computer as a fourth dive indicate that Mr. Stewart did not make any attempt at self-rescue once submerged.

On autopsy the decedent was found to have mild decompositional change and no evidence of trauma or acute infection. Gas bubbles are demonstrated in the vasculature. There is acute pulmonary edema, which is severe. There is no evidence of any other pathological conditions or natural disease. Postmortem toxicological analysis of blood is reported Negative.

The witnessed events surrounding the collapse and recovery of Peter Sotis are characteristic of the clinical manifestations of acute hypoxia. Although the probability of Decompression Sickness (DCS) is suggested by some of the NEDU findings it can effectively be ruled out by the lack of any sequelae without recompression and further treatment. Decompression Sickness is progressive and possibly fatal without recompression and additional treatment. Oxygen treatment alone does nothing to address the underlying pathophysiology of DCS. Therefore, based on the information available to me at this time it is my opinion that both Peter Sotis and Robert Stewart suffered acute hypoxia at the surface. Once Mr. Stewart lost consciousness he lost control of the breathing loop and drown. Therefore, it is my opinion that the cause of death is best certified as Drowning with the manner of death classified as Accident.



Thomas Beaver, M.D.  
District 16 Medical Examiner  
TRB/trb

8/4/17