

CASE/ MC99009173 PORT/ LISMS SUBJECT/ SEEKER/PERCAS/MURLEY, CHRIS DATE/ 21JUL99

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Christopher B. Murley was 44 years old. He suffered from hypertension and was overweight. On October 6, 1997, he received a doctor's authorization to participate in scuba diving from a cardiac standpoint. He started diving February 14, 1998 through the Cincinnati Dive Center. Joe Jackson, owner, operator and instructor at this dive center worked very closely with Mr. Murley in completing numerous dive courses. Chris Murley earned the following certifications:

Open Water - 3/98  
Advanced Open Water - 6/98  
NITROX - 6/98  
TRIMIX Classroom training 7/98.  
Cavern and Intro to Cave Training - 1/99  
Cave Diver - 4/99  
Oxygen Provider - Spring 99

According to Mary Beth Byrne, Mr. Murley's fiancée at the time of the casualty, they began the TRIMIX classroom training together around July 1998. According to the logbooks, at this time, Mr. Murley had logged less than 27 dives. Of these logged dives, only 5 were between the depths of 100 and 127 feet and the total cumulative bottom time was 12 hours 18 minutes.

The training dives, which were scheduled for August 1998, were cancelled due to bad weather. During the fall of 1998, Chris Murley practiced with some decompression dives and with one exception on October 5th, never dove to a depth greater than 128 feet.

Dated April 18th 1999, a completed Technical Diving International (TDI) General Liability Release and Express Assumption of Risk form was filled out and appears to have been signed by Chris Murley. In this form, it states that he had been diving for one and a half years, for a total of 130 dives, to a maximum depth of 140 feet. TDI is one of several recognized dive organizations that certify dive instructors who can then teach other divers to their (TDI's) standards.

June 17 - June 21, 1999, Chris Murley went to Pompano, Florida to complete the certification dives for the TRIMIX class. He logged 3 completed dives during this trip to depths of 172, 196 and 259 feet. These were dive numbers 79, 80 and 81. At the conclusion of these dives, Chris Murley had logged a total actual bottom time to date of 40 hours and 22 minutes.

On June 25, 1999, Chris Murley assisted in a body recovery mission diving to about 100 feet using only air. At this time, Mary Beth Byrne learned that her fiancée had slept through most of the Florida trip and did not go out to eat most of the nights. The Pompano, FL trip was a warm up for several of the divers who would be going on the ANDREA DORIA trips scheduled for July. Joe Jackson had told Chris Murley that he had really struggled with these dives and that the ANDREA DORIA would not be as easy as the Pompano dives. Ms. Byrne said that Joe Jackson was to make the final decision whether her fiancée was ready to go or not.

Chris Murley was unsure whether he would be allowed to go on the Andrea Doria trips and it wasn't until the beginning of July that Joe Jackson told him that he could go on the two dive trips to the wreck of the ANDREA DORIA. Mr. Murley logged 6 dives since his return from Pompano before going out on the Andrea Doria trip. Of the 6 dives, 3 were between 98 feet and 122 feet deep and 3 were less than 63 feet deep.

On July 17, 1999, the dive boat SEEKER was underway on the first trip chartered by the Cincinnati Dive Center to the wreck of the ANDREA DORIA. Due to bad weather conditions, the plans were changed and the vessel went to the wreck of the U-853, a German submarine sitting off the coast of Block Island. Chris Murley completed one dive on this wreck to a depth of 119 feet.

The vessel returned to the dock around noon on the 17th and Chris Murley slept for the rest of that day and the next, hardly eating. Ms. Byrne woke him on Monday the 19th and they went out for the day. They arrived back at the dock and got onboard around 6:00pm.

The vessel got underway at approximately 11:00pm on July 19th for the second Cincinnati Dive Center trip out to the ANDREA DORIA. For this trip, there were 10 people onboard. Six crewmembers plus Joe Jackson, Rick Vanover, Rick Lay, Chris Murley and Mary Beth Byrne. Only Chris Murley and Rick Lay were paying divers for the trip. Joe Jackson and Rick Vanover were representing the Cincinnati Dive Center and received free carriage for arranging the trip. Ms. Byrne went along for the ride but was not diving.

At some time after the boat departed, Joe Jackson and Mary Beth Byrne had a discussion with Chris Murley about how he was acting and feeling. The discussion included talking about his recent diagnosis with diabetes and the effects diving has on people with diabetes. Mr. Jackson said that it affects different people in different ways.



The SEEKER arrived at the wreck on July 20th. On the first dive, Chris Murley was supposed to be Joe Jackson's buddy but he aborted the dive saying that he was having trouble with his mix and could not breathe. He had great difficulty returning to the boat and had to remove his gear before climbing aboard. Joe Jackson did not return to the boat when Mr. Murley aborted the dive but continued on with his planned dive. Chris Murley wrote in his dive log "tanks must have been anal (analyzed) wrong - difficulty breathing blue haze in sight." He told Ms. Byrne that he was having trouble with his sight (a blue haze) but after a nap and food, he said that it was gone.

On July 21st, Chris Murley successfully completed a morning dive on the wreck with Joe Jackson as his buddy. They went to the wreck, crossed the promenade deck, entered a short distance into Gimbel's Hole and returned. He logged this dive, number 89 in his dive log, as a depth of 189 feet with a bottom time of 61 minutes. The bottom gas listed on the dive plan was 15/30. (15% Oxygen, 30% Helium) According to Joe Jackson, the bottom gas is sometimes called a back gas. This is the gas supply in the double tanks and is the main source of breathing gas for the descent and bottom portions of the dive. Chris Murley wrote in his dive log and Ms. Byrne confirmed that his instructor, Joe Jackson, had said it was a good dive.

After having lunch and a nap, Chris Murley was scheduled to conduct an afternoon dive with Joe Jackson, Rick Vanover and Rick Lay. The dive plan called for Joe Jackson and Rick Vanover to enter the wreck while Chris Murley and Rick Lay would remain outside. Ms. Byrne stated that her fiancée was not happy because he wanted to return and enter the wreck. According to Joe Jackson, "on the second dive, the deceased was using a back gas of 20/5 (20% Oxygen, 5 % Helium) because we had diluted the mixture by refilling. We were planning a relatively shallow dive where air would have been acceptable and went ahead with this mixture."

Chris Murley entered the water at approximately 5:12pm and gave the OK sign. Joe Jackson immediately followed him. Chris Murley then swam from the stern of the vessel, along a "gerrie" line, to the anchor line at the bow. At the bow, crewmembers of the SEEKER heard him calling for help. He did not have his regulator in his mouth and his buoyancy compensator(BC) and dry suit were not inflated. Steve Nagiewicz entered the water to assist. Joe Jackson had surfaced and asked what the problem was. Both of them tried to assist Mr. Murley by inflating his BC and dry suit and giving him his regulator. He was flailing his arms and would not take the regulator. After the BC and dry suit were inflated, he began to calm down. Joe Jackson began pulling him to the stern of the vessel while Steve Nagiewicz pushed. As they got to the stern and began removing his gear, someone on the vessel shouted that he was not breathing. Another diver jumped in, raised his head out of the water and began mouth to mouth resuscitation. A knife was used to cut his gear off and several persons tried to bring him up the ladder.

After unsuccessful attempts by 4 or 5 people to get him up the stern ladder, they decided to bring him to the side. Mouth to mouth and in water CPR were continued until he was hoisted aboard using the vessel's davit. Resuscitation efforts continued including the administration of oxygen onboard the vessel until a CG helicopter arrived on scene at 6:34pm. Chris Murley was placed in a stokes litter and hoisted aboard the helicopter, which transported him to Cape Cod Hospital, where he was pronounced deceased at 7:30pm.

The Commonwealth of Massachusetts Office of the Chief Medical Examiner conducted an autopsy. The medical examiner's report stated that the cause of death was drowning. Other significant conditions found were cardiomegaly, moderate coronary arteriosclerosis and obesity. The manner of death was accidental. The report stated Chris Murley was 79 inches tall and estimated that he weighed 350 pounds.

A review of Chris Murley's dive log revealed the following:

1) As of April 18, 1999, he had 70 logged dives, of which only 10 dives were between 100-129 feet. Note: There was one dive logged as 206 feet done at Palancar Brick on October 5, 1998.

2) At the time of this final dive, he had 89 logged dives, of which no more than 6 were at depths greater than 130 feet.

3) On August 16, 1998, Joe Jackson signed Chris Murley's dive log as the verification signature for dive number 27.

The information available from TDI, lists a prerequisite for their Advanced TRIMIX course as a minimum of 100 logged dives or the equivalent at the discretion of the instructor. The training staff at TDI stated that the terminology "or the equivalent at the discretion of the instructor" is there to allow an instructor to require MORE than the minimum 100 logged dives as a prerequisite for the course. For example, if an individual with over 100 logged dives wanted to take the Advanced TRIMIX course, but all of their dives were at very shallow depths, the instructor could deny the individual entry into the course until they had completed some more difficult dives.

## Conclusions:

1) The medical examiner listed the official cause of death as drowning. At some point while Chris Murley was being towed/pushed to the stern of the vessel, he became unconscious; causing him to lose control of his neck muscles and his face fell into the water. What caused him to lose consciousness is not known, however, the combination of his moderate arteriosclerotic heart disease, diabetes, obesity and hypertension may have contributed. Cardiomegaly, which is an enlargement of the heart, can also not be ruled out as a contributing factor.

2) That the crew, with the assistance of the passengers on the vessel, could not easily retrieve the unconscious victim from the water. Even after removing the dive gear, the crew ended up using the vessel's davit to lift the victim out of the water.



- 3) That Chris Murley did not meet the prerequisites required by TDI to be taking the Advanced TRIMIX course, as he had not completed the minimum number of dives. In addition, based on his dive experience as logged, compared to other divers who have dove the ANDREA DORIA, it appears that he did not possess adequate deep diving experience to attempt this dive without a tremendous increase in risk.
- 4) That Joe Jackson did not require Chris Murley to complete a new medical questionnaire or take a new physical exam before allowing him to enter the Advanced TRIMIX course.
- 5) That Joe Jackson, the instructor certified by TDI to teach the Advanced TRIMIX course, failed to ensure that Chris Murley met the TDI prerequisites before allowing him to take the Advanced TRIMIX course. At a minimum, Joe Jackson failed to look at the number and type of dives logged by Mr. Murley as required by TDI.
- 6) That the information contained on the TDI General Liability Release and Express Assumption of Risk form, dated April 18, 1999, was not accurate. The form stated that Chris Murley had completed 130 dives when he had only completed 70 logged dives. In addition, the form listed a maximum depth of 140 feet. If the dive logged on October 5, 1998, listing a depth of 206 feet was accurate, the maximum depth listed on the form should have been 206 feet; otherwise, it should have listed a maximum depth of around 128 feet. Either way, the information provided was incorrect. In addition, the form states that he had been diving for 1 1/2 years when he had only been diving for just over 1 year and 2 months.
- 7) That Joe Jackson should have questioned the information Chris Murley listed on the TDI waiver form signed on April 18, 1999. Joe Jackson signed as the witness for dive number 27 on August 16, 1998. He was closely associated with Chris Murley's dive training since he began diving in February 1998 and should have reviewed his dive log book or questioned how he could have completed 103 dives between August 16, 1998 and April 18, 1999.
- 8) That one of the reasons Joe Jackson let Chris Murley go on the trip to the ANDREA DORIA was personal gain. Mr. Murley was one of two paying passengers on the second trip. If he had not been allowed to go, the trip may have been cancelled and the money paid as a deposit forfeited. By letting Chris Murley go, Joe Jackson and Rick Vanover received a free opportunity to dive on the ANDREA DORIA in addition to avoiding a monetary loss for the Cincinnati Dive Center.
- 9) That prior to going on the ANDREA DORIA trips, Chris Murley did not tell Joe Jackson that he had recently been diagnosed with diabetes.
- 10) That upon learning while onboard the SEEKER that Chris Murley had been diagnosed with diabetes, Joe Jackson should have stopped him from diving the wreck of the ANDREA DORIA. Since Chris Murley's medical condition had changed since the last medical questionnaire and physical exam were completed, Joe Jackson should have required a new medical evaluation prior to letting him dive to these great depths.
- 11) That Chris Murley's final act should not have been diving on the wreck of the ANDREA DORIA. His lack of experience, known medical problems and recent actions on the Pompano dive trip, including sleeping for extended periods, missing meals, and not feeling well, should have alerted someone that there was a problem. Chris Murley should not have been attempting an extreme dive with his medical condition, where professional medical assistance is neither immediately available nor can it be reasonably expected.

#### Recommendations:

- 1) That the operator of the dive boat consider providing some type of lifting harness/system to speed recovery of an unconscious/injured person if the davit arm will be one of the primary means of getting persons out of the water. One example of this type of system is the JASON'S CRADLE. Manufactured by Land and Marine Products Limited, Hampshire England, this type of system would probably hook right into the existing davit and allow a victim to be brought up the side of the vessel.
- 2) That the recreational diving community (as a whole or by individual vessel) voluntarily institute a policy where a diver under instruction will **NOT be allowed to dive the wreck of the ANDREA DORIA**. This wreck is considered extremely difficult. Allowing an inexperienced diver to dive these depths, while under instruction, carrying additional equipment they are probably not used to, and far from any professional medical treatment, is an unnecessary risk that borders on negligence.
- 3) That the recreational diving community (as a whole or by individual vessel) voluntarily institute guidelines where the experience of each diver going out to dive the wreck of the ANDREA DORIA would be individually checked by the crew of the vessel they are going on, unless an individual diver's experience was personally known by the vessel's crew. The industry is encouraged to set a minimum level of experience necessary to dive the wreck of the ANDREA DORIA. Since the different diving certification agencies have different standards to become certified to dive the depths of the ANDREA DORIA, the experience of the vessel's crew should be used in setting a reasonable minimum level of experience.
- 4) That the recreational diving community (as a whole or by individual vessel) establish guidelines requiring individuals who are not in good physical condition, to provide evidence of a medical examination authorizing them to participate in scuba diving, which has been completed within 6 months of the dive trip. The determination as to whether a diver is in good physical condition should be based on a recognized medical standard, such as height and weight charts or the more recently accepted Body Mass Index (BMI). A diver who falls outside of the normal range for the height and weight charts, or has a BMI placing them in the increased risk category (BMI over 25), would be required to present evidence of the medical authorization to dive to the vessel's crew. The World Health Organization has defined an individual with a BMI between 25 and 29.9 as overweight, and an individual with a BMI of 30 or greater as obese. Studies have found that an individual with a BMI over 25 has an increased risk of mortality

and in general, the larger the BMI, the greater the risk. Using this casualty as an example, Chris Murley had a BMI of 35 using the height and weight he listed on the diver data sheet and a BMI of over 39 using the height and weight from the medical examiner's report, both clearly above the threshold for the increased risk.

5) That a copy of this investigation be forwarded to the agencies, which Joe Jackson is a certified dive instructor for (TDI, National Association of Underwater Instructors (NAUI) & Professional Association of Diving Instructors (PADI)) for their review of his actions in this casualty and possible action against his instructor credentials.

6) That TDI review their course prerequisites and if necessary modify them. At a minimum, it is recommended that they clarify what is meant by "or the equivalent at the discretion of the instructor" where it states the prerequisite for the Advanced TRIMIX course is "a minimum of 100 logged dives or the equivalent at the discretion of the instructor."

Enclosures: (Forwarded under separate cover.)

- 1) CG-2692 dated 08/25/99
- 2) E-mail containing Coast Guard's Message Traffic
- 3) Autopsy Report CME-99-02149
- 4) Summary of Phone Conversations with Joe Jackson/e-mail
- 5) Statement of Joe Jackson
- 6) Diving Accident Report filed by Joe Jackson
- 7) Statement of Steve Brozma
- 8) Statement of Rick Lay
- 9) Statement of Rick Vanover
- 10) Statement of John Moyer
- 11) Statement of Steve Nagiewicz
- 12) Statement of Jennifer Samulski
- 13) Statement of Gary Gentile
- 14) Statement of Mary Beth Byrne
- 15) E-mail from Mary Beth Byrne via Mark Kammer
- 16) Seeker Crew/Passenger List
- 17) Cincinnati Dive Center Andrea Doria Boat Roster
- 18) Seeker Liability Release dated 20MAY99
- 19) Seeker Diver Data Sheet
- 20) Seeker Dive Logs and Notes
- 21) Chris Murley's Dan Diver Card
- 22) TDI Diver Registration Form (NITROX)
- 23) Medical waiver dated October 6, 1997
- 24) Technical Deep Diving Registration dated 20MAY99
- 25) TDI Diver Registration Form (Advanced TRIMIX)
- 26) PADI Standard Safe Diving Practices Statement of Understanding and Medical Statement dated 13FEB98
- 27) PADI Standard Safe Diving Practices Statement of Understanding and Medical Statement dated 25APR98
- 28) General Liability Release dated 18APR99
- 29) World Health Organization Press Release 46 on Obesity
- 30) TDI Advanced TRIMIX Dive Course Information
- 31) Chris Murley's Dive Logs