

## **IFD diver dies in training exercise**

<http://www.indystar.com/article.php?missingpm0614.html>

### **Firefighter was part of a class of novice divers making their last training dive.**

June 14, 2002 By Tom Spalding [tom.spalding@indydstar.com](mailto:tom.spalding@indydstar.com)

After missing for nearly two hours underwater, an Indianapolis Fire Department diver died during a training session in a Northwestside pond this afternoon, sources said.

Medics attempted to resuscitate the unidentified diver who was taken to Methodist Hospital by ambulance. Several official sources said the firefighter was dead. Authorities were withholding his name until they finished contacting relatives.



The diver was part of a training mission at Ropkey Armor Museum at 79th Street and Marsh Road. The private pond is often used by law enforcement and fire agencies for training.

The diver was discovered missing about 12:45 p.m. IFD divers use a buddy system, and the fellow diver could not locate his "buddy," officials said. The diver was located about 2:55 p.m., said IFD spokesman Capt. Mario Garza. The Marion County Sheriff's Department will investigate the death. There are often underwater obstacles that can trap divers. "Just about any pond in Indiana is going to have a possibility of a snag," Smith said.

Experienced divers were making a methodical search of the murky pond, which is about 50 feet deep. One diver in the rescue party had to be aided to shore after he got a severe head ache. He was treated at the scene.

The missing firefighter was part of a class of novice divers. They were doing the last of 22 training dives over six weeks, said Dawn Smith, deputy chief of the Pike Township Fire Department.

The training class included firefighters from Lawrence, Fishers, Indianapolis, Wayne Township, Pike Township and officers from the Indianapolis Police Department.

An IFD diver was killed in a training accident in August 2000.

Pvt. Warren J.C. Smith was diving in about 70 feet of water when changes in the pressure created a condition that starved his lungs and heart of oxygen. Smith and three other divers were practicing the rescue of a drowning child.

The Ropkey Armor Museum has a collection of military vehicles including tanks and trucks.

## **Indianapolis fire department: drowning fatality**

<http://www.starnews.com/article.php?diver15.html>

June 14, 2002 By Tom Spalding

### **IFD diver drowns while training**

For the second time in less than two years, an Indianapolis Fire Department training dive turned deadly. In an accident that is still under investigation, 37-year-old Paul Jolliff drowned after he panicked and apparently was unable to surface just before 1 p.m. Friday.

It took rescuers nearly two hours to find Jolliff in the cold, murky water of a Northwestside pond. He was pronounced dead at Methodist Hospital. The seven-year veteran normally drove a fire truck and was a paramedic at Station 10, 2970 N. Sherman Drive. He was on his 22nd and final practice mission before being certified as a department dive team member. Another Indianapolis firefighter, Warren J.C. Smith, died on a training dive in August 2000.

A public memorial service for Jolliff will be held Wednesday. He is survived by his wife, Wendy, who is pregnant with their second child. Jolliff also has a son who turns 3 in October. Jolliff was the grandson of Paul K. Jolliff, an Indianapolis firefighter from 1940 to 1966.

"It was what he loved to do," said Tom Hanify, president of the firefighters' union Local 416. "He was following in his grandfather's footsteps. He loved being a firefighter, which most of us do."

Jolliff, a marathon runner, was awarded a community service medal early in his career, which began Jan. 3, 1995.

The accident happened in a pond near 79th Street and Marsh Road. The private, 10-acre pond has been used by police and fire agencies for training for about 40 years. Investigators spent the afternoon and evening questioning at least 25 witnesses at the lake on the grounds of the Ropkey Armor Museum. Many details of the accident are still unknown.

Senior Deputy Chief Dave Grider informed firefighters via their radio some six hours after the tragedy of the news and ordered all flags flown at half-mast. At a news conference a few minutes later, he and other department leaders were unable to say whether the proper life-saving techniques were followed. Chief Louis Dezelan cut short a vacation.

Officials said the department made some changes to its diving policies after Smith died. According to Firehouse.com, a clearinghouse for firefighting information, such accidents are unusual. The site's accounts of deaths in the

line of duty indicate Jolliff may be only the third firefighter nationwide to drown since 1999. Smith and an Illinois firefighter are the other two.

Drowning during training are fairly rare, said Joel Dovernbarger of the Divers Alert Network, a national organization that, among other things, tracks diving accidents. "It's a small number," he said. "Sometimes things happen that end up in somebody drowning."

Department officials promised to learn from the incident. "It makes us want to find out everything we can. If there's any way that it can be avoided in the future, we want to find it," Grider said. "We won't rest until we find it."

The missing firefighter was part of a class of novice divers. They were finishing the last of their training dives, said Dawn Smith, deputy chief of the Pike Township Fire Department. The training class included firefighters from Lawrence, Fishers, Indianapolis, Wayne Township, Pike Township and officers from the Indianapolis Police Department. Jolliff and his dive partner descended at 12:15 p.m. During the training, divers perform a search of an object and do so intentionally in zero visibility. The two divers were tethered together and also attached to a rope that led to the surface.

At 12:30 p.m., just 15 minutes into the practice run, Grider said Jolliff apparently panicked and reached over and informed his diving partner. As called for in dive procedures, Jolliff's weight belt was removed -- either by himself or the partner, Jay Updike of the Fishers Fire Department. Updike surfaced and immediately warned dive instructors of the danger below.

When the weight belt came off, Jolliff should have floated free to the surface.

But he didn't.

It took the use of a sonar-equipped boat from Fred Ropkey, owner of the property, for searchers to find Jolliff at 2:56 p.m.

Indianapolis Fire Department officials say that the pond has all types of debris at the bottom, ranging from wires to tree limbs, that might have caught Jolliff. "Just about any pond in Indiana is going to have a possibility of a snag," Smith said.

The Marion County Sheriff's Department is investigating the death.

One diver in the rescue party had to be helped to shore after he got a severe headache. He was treated at the scene. The last firefighter died in an accident in about 70 feet of water. An investigation afterward showed he may have become entangled in lines used to guide a training search. Smith and three other divers were practicing the rescue of a drowning child.

Capt. Mario Garza, spokesman for the Indianapolis Fire Department, said the department made minimal changes to its procedures after the accident, but some steps -- including checking divers' air supplies before submerging -- were adopted.

A complete list of the changes wasn't immediately available. But public safety officials will review training procedures. "It's something they'll have to look into," Garza said.

Ropkey, owner of the property, has dived countless times in the pond, he said, and watched the whole training exercise. Based on his experience, he said, "Everything that was done was by the book."

"It's a sad tragedy. Just pray."

## **Indianapolis Firefighter Dies During Diving Exercise Body Found Two Hours After Man Disappeared Under Water**

[http://www.firehouse.com/lodd/2002/in\\_jun14.html](http://www.firehouse.com/lodd/2002/in_jun14.html)

Courtesy [TheIndyChannel.com](http://TheIndyChannel.com)

INDIANAPOLIS-- The body of an Indianapolis Fire Department diver who was training in a 10-acre pond on the city's northwest side was pulled from the water Friday afternoon, authorities said.



Rescuers were called to the pond, near the intersection of West 79th Street and Marsh Road, around 12:45 p.m. after the he disappeared under water, authorities said. The diver's body was found about two hours later. His identity was not immediately available.

An official said the firefighter was among 22 students in diving school at the pond, which is 70 feet deep in places. They had been taking lessons since April. Friday was the last day of diving for the class, the official said.

IFD spokesman Mario Garza said investigators didn't yet know how the diver died. Garza said the Marion County Sheriff's Department would investigate. The pond is murky and full of undergrowth, which complicated efforts to find the diver.

The diver is the second IFD firefighter to die in a diving exercise in less than two years. In August 2000, firefighter Warren J.C. Smith died during training on the city's southwest side.

## **INDIANAPOLIS FIREFIGHTER DIES**

<http://www.indystar.com/article.php?diver15.html>

June 15, 2002 By Tom Spalding

### **Diver drowns while training Agency has 2nd diving fatality in nearly 2 years**

For the second time in less than two years, an Indianapolis Fire Department training dive turned deadly.

In an accident that is still under investigation, officials said 37-year-old Paul Jolliff drowned after he apparently panicked and was unable to surface just before 1 p.m. Friday.

It took rescuers nearly two hours to find Jolliff in the cold, murky water of a Northwestside pond. He was pronounced dead at Methodist Hospital.

The seven-year veteran normally drove a firetruck and was a paramedic at Station 10, 2970 N. Sherman Drive. He was on his 22nd and final practice mission before being certified as a department dive team member. Another Indianapolis firefighter, Warren J.C. Smith, died on a training dive in August 2000.



***A rescue boat (right) takes the body of Indianapolis IFD firefighter Paul Jolliff to shore. Jolliff drowned in a private pond Friday at Ropkey Armor Museum, between 86th and 79th streets just west of I-465. He had been missing underwater for nearly two hours after a training exercise. Jolliff had been a paramedic at Station 10, 2970 N. Sherman Drive. -- John Severson / staff photo from WTHR's Chopper 13***

A public memorial service for Jolliff will be held Wednesday. He is survived by his wife, Wendy, who is pregnant with their second child. Jolliff also has a son who will turn 3 in October. Jolliff was the grandson of Paul K. Jolliff, an Indianapolis firefighter from 1940 to 1966.

"It was what he loved to do," said Tom Hanify, president of the Fire Fighters' Union Local 416. "He was following in his grandfather's footsteps. He loved being a firefighter, which most of us do."

Jolliff, a marathon runner, was awarded a community service medal early in his career, which began Jan. 3, 1995. The accident happened in a pond near 79th Street and Marsh Road. The private, 10-acre pond has been used by police and fire agencies for training for about 40 years.

Investigators spent the afternoon and evening questioning at least 25 witnesses at the pond on the grounds of the Ropkey Armor Museum. Many details of the accident are still unknown. Senior Deputy Chief Dave Grider informed firefighters via their radio about six hours after the tragedy of the news and ordered all flags flown at half-staff.

At a news conference a few minutes later, he and other department leaders were unable to say whether proper life-saving techniques were followed. Chief Louis Dezelan cut short a vacation, returning to Indianapolis from south Florida on Friday night.

Officials said the department made some changes to its diving policies after Smith died. According to Firehouse.com, a clearinghouse for firefighting information, such accidents are unusual. The United States sees three to five deaths a year among police and fire department dive teams, according to Mike Bielmaier, vice president of the International Association of Dive Rescue Specialists.

Usually, those deaths come in practice as divers face situations for which they are unprepared. "Typically, the problem lies in training," he said, "or in the equipment available to them." The association is a nonprofit operating from Fort Collins, Colo. aimed at helping public service divers and teams. Bielmaier said his group recommends new divers be banned from depths greater than 60 feet.

Officials said Jolliff was between 50 and 60 feet down at the time of the accident, but the pond is up to 70 feet deep in spots. IFD officials promised to learn from the incident. "It makes us want to find out everything we can. If there's any way that it can be avoided in the future, we want to find it," Grider said. "We won't rest until we find it."

Jolliff was part of a class of novice divers. They were finishing the last of their training dives, said Dawn Smith, deputy chief of the Pike Township Fire Department. The training class included firefighters from Lawrence, Fishers, Indianapolis and Wayne and Pike townships, along with officers from the Indianapolis Police Department.

Jolliff and his dive partner descended at 12:15 p.m. During the training, divers perform a search for an object and do so intentionally in zero visibility. The two divers were tethered together and also had a rope that led to the surface.

At 12:30 p.m., just 15 minutes into the practice run, Grider said Jolliff apparently panicked and reached over and informed his diving partner. Jolliff's weight belt was removed -- either by himself or his partner, Jay Updike of the Fishers Fire Department. Updike surfaced and immediately warned diving instructors of the danger below.

When the weight belt came off, Jolliff should have floated free to the surface. But he didn't. It took the use of a sonar-equipped boat from Fred Ropkey, owner of the property, for searchers to find Jolliff at 2:56 p.m.

Indianapolis Fire Department officials say that the pond has all types of debris at the bottom, ranging from wires to tree limbs, that might have caught Jolliff. "Just about any pond in Indiana is going to have a possibility of a snag," Smith added. The Marion County Sheriff's Department is investigating the death.

One diver in the rescue party had to be helped to shore after he got a severe headache. He was treated at the scene. The last firefighter who died in an accident drowned in about 70 feet of water.

An investigation afterward showed he might have become entangled in lines used to guide a training search. Smith had been practicing the rescue of a drowning child.

Capt. Mario Garza, spokesman for the Indianapolis Fire Department, said the department made minor changes to its procedures after the accident, but some steps -- including checking divers' air supplies before submerging -- were adopted.

A complete list of the changes wasn't immediately available. But public safety officials will review training procedures. "It's something they'll have to look into," Garza said.

Ropkey, owner of the property, has dived countless times in the pond, he said, and watched the whole training exercise. Based on his experience, he said, "Everything that was done was by the book.

"It's a sad tragedy. Just pray."

## **Diver died trying to raise concrete block**

<http://www.indystar.com/article.php?diverpm0620.html>

June 20, 2002 By [Tom Spalding](#)

Authorities today said Paul K. Jolliff died during a dive-training exercise that involved trying to fill a balloon-like device with air from his tank to lift up a concrete block 27 feet below the surface of a Northwestside lake.

What they are trying to determine is whether he'd attached himself to that block to free up his hands or somehow got tangled up on either debris or a safety rope.

Experienced divers from the Indianapolis Police Department went into the water today -- the first time anyone had gone into back into the lake since the June 14 accident that killed the Indianapolis firefighter - essentially retracing the steps taken by Jolliff, 37, and a dive buddy from the Fishers Fire Department.

Divers today were underwater looking for the block, estimated to weigh about 45 pounds, to see if there was any attachment device that might prove helpful. Because of the murkiness of the cold water, there were few witnesses to what happened.

On the shore, investigators wondered how Jolliff got into trouble

"Was he entangled on a line or anchored to something? " suggested IPD Deputy Chief Bettye Dobkins, who helped supervise at the scene and who has been involved with IPD diving for years.

Lt. Dennis May of the Marion County Sheriff's Department, one of the investigative units, confirmed divers were looking for the block but declined to say what other items were recovered or how exactly they fit into the investigation. Some of the material will be sent to the U.S. Navy Experimental Diving Unit in Panama City, Fla., for analysis. It will take months for the investigation to be complete.

About seven IPD divers were in the waters at Ropkey Armory Museum, at 79th Street and Marsh Road, just west of I-465.

When Jolliff died, he was part of a six-week program sponsored by the city of Lawrence Fire Department that trained divers to become certified underwater rescuers.

Besides the evidence recovery the divers also shared information about conditions to make sure none of those divers got trapped or injured in a manner similar to Jolliff. They used a boat equipped with sonar. Unlike last week, an advanced life support team with an ambulance were standing by in case of trouble.

## **Honoring a fallen comrade**

**Peers, public mourn drowned firefighter**

<http://www.indystar.com/article.php?memorial20.html>

**Amid moving day of tribute to Paul Jolliff, many want assurance tragedy won't recur.**

June 20, 2002 By [Bill Ruthhart](#) and Tom Spalding



Paul K. Jolliff's funeral procession crept along 34th Street toward Crown Hill Cemetery on Wednesday afternoon.

Drums and bagpipes played, their somber song drawing people to the street.

A barber and two customers walked outside to pay their respects. One wore a pinstriped smock, his hair only half-cut. His eyes were glued to the street.

Employees waited silently outside a dry cleaner, one sadly shaking her head.

A pair of mechanics in an auto repair shop stopped working and walked to the gate at the front of the garage. Their blackened, greasy hands clenched the gate as they watched hundreds of mourners pass by.

Others along the route paused, many saluting or holding their hands over their hearts. The 37-year-old Jolliff, an Indianapolis firefighter, drowned Friday in a training exercise at a Northwestside pond.

Jessica Hoffman -- whose uncle, a New Jersey firefighter, assisted in Sept. 11 recovery efforts -- said she felt compelled to stand along the route. "It's sad it takes a tragedy like this for all of us to have more respect for firefighters and police officers," she said.

More than 1,000 people -- a majority of them firefighters or other public-safety workers -- packed the pews at Trinity Episcopal Church as well as a school gym, where the ceremony was shown on closed-circuit TV.

There, Jolliff was remembered.

"We will miss him, we will not forget him, and today we celebrate his life," said the Rev. Nancy Ferriani, a senior associate rector of the church. She praised his work ethic and positive attitude, saying: "This modest man knew that every day was a gift."

Jolliff spent some of those days attending California State University-Fresno and serving in the Army Airborne Rangers. He was appointed a firefighter Jan. 3, 1995, and had been assigned to Station 10 for seven years. In that job he followed his grandfather and namesake's footsteps at the IFD.

Jolliff also made a lot of footsteps outside the department, Fire Chief Louis Dezelan recalled. Dezelan remembered meeting Jolliff and learning of his goal to run a marathon in every state. Jolliff made it to 54 races in 20 states.

Jolliff met his wife, Beth Morris Jolliff, at church. Their son, Timothy, turns 3 in October, and she is seven months pregnant.

Jolliff sometimes brought meals to AIDS patients on his lunch hour.

His fellow firefighters treasured the chance to work with him.

Battalion Chief Keith Smith called Jolliff a respectful model for all firefighters who loved what he did and was very good at it. "Losing him is more than a family loss and more than a professional loss -- it's a loss to the community," Smith said. "It's a loss to the spirit of our department because of the example he set."

Mayor Bart Peterson said he was glad Jolliff lived long enough to see the image and public perception of all firefighters improve after the loss of 343 firefighters in the Sept. 11 terrorist attacks in New York. "Today he is singled out for individual honors," Peterson said, adding that Jolliff's life was taken "too soon, too young, too tragically."

After the ceremony, Jolliff's casket, draped with the American flag, was carried out of the church.

Hundreds of men and women in dark blue uniforms stood silently, saluting Jolliff as his casket was lifted onto the back of an engine from Station 10.

Ten pairs of police motorcycles, followed by the color guard and the IFD Emerald Society bagpipers, helped lead the engine to Crown Hill Cemetery, several blocks away.

Hundreds followed on foot. The procession -- several blocks long -- turned down 34th Street, where a large American flag, hung from aerial ladders, fluttered gently in the breeze.

When the engine carrying Jolliff's body reached the cemetery gate, the crowd stood in a silent salute for nearly five minutes. A bell then sounded several times as the engine slowly proceeded into the cemetery.

Firefighters said the service gave them a sense of closure but still left them with one question: With two training drownings occurring in the past two years, what can be done to prevent this from happening again? "This is a very, very tough thing, and we all feel a lot of pain right now, but we will let the investigation go on," said Michael Reeves, vice president of the Local 416 union. "If mistakes were made, we must do what we have to do to correct them so something like this won't happen again. We will learn from this."

## **Indianapolis Fire Union Pushes For Diving Safety Program**

(From The Indianapolis Star, June 20, 2002)

INDIANAPOLIS, IN -- Many lessons learned from a fatal diving accident two years ago apparently went unheeded in the moments before an Indianapolis firefighter's death Friday. The death of Paul K. Jolliff during a training dive has sparked at least four investigations, criticism from national experts and a call for action from the mayor. And Wednesday night, the local firefighters union voted overwhelmingly to push Indianapolis Fire Department officials to re-evaluate diver safety procedures.

Members of International Association of Fire Fighters Local 416 called for an investigator independent of any Indiana public-safety agency. They also endorsed two dozen suggestions intended to improve diving safety.

Since IFD's team was founded, it has never saved a drowning civilian -- but two firefighters have been lost in training. And public-safety diving deaths are almost unheard of nationally. There have been seven since 1999, according to the International Association of Dive Rescue Specialists.

"To have two of these tragic deaths occur in less than two years could be a tragic coincidence," said Mayor Bart Peterson. "We have to start with the assumption that there is something here that has to be fixed, and it has to be fixed quickly."

Pike Township Fire Chief Harry W. Tibbetts said IFD's fatalities may lead him to scrap his dive team because "it's not worth the risk."

Even the report on the August 2000 death of firefighter Warren "J.C." Smith received little attention, said Tom Hanify. He is president of the local firefighters union and was part of a panel that made two dozen recommendations after that accident. Hanify doesn't think the committee ever made sure the recommendations were carried out. In fact, the diving instructor who led both fatal training dives told The Star he was never given a copy of the report.

Authorities are still trying to determine what went wrong, but union officials have pointed out problems. "We want to make sure something's in place before another tragedy occurs," said Mike Reeves, vice president of the 740-member union.

Jolliff was allowed to dive with a radio that didn't work, and no one onshore had a radio to hear divers who did have working systems. Jolliff also didn't have a backup air bottle, and no specially trained emergency medical personnel were at the dive site.

Communication is difficult in some Indiana waters, where visibility may stretch little more than an arm's length. Radios aren't the only way to communicate, but they can play a critical role in an emergency. In fact, federal safety officials reviewing Smith's death urged the department to adopt voice-activated radios for divers to keep their hands free. They also

recommended listening to radio conversations from shore and canceling training if the radios didn't work.

But instead of ending training, local divers simply tug on the rope.

That's not good enough anymore, says Mike Bielmaier of Dive Rescue International. A firefighter-paramedic and the instructor for the Loveland, Colo.-Area Dive Rescue Team, Bielmaier said radios are vital.

But they can be difficult. In fact, Indianapolis Fire Chief Louis Dezelan said he considered going to a voice-activated radio system after Smith died but found that even breathing would turn the microphones on. "It tends to need a lot of adjustment and fooling around with to work right, and typically people get frustrated and put it away," Bielmaier said, and that's a mistake.

"One of the most important reasons to have the divers on the communications is because you can hear their breathing," Bielmaier said. That allows supervisors to gauge the condition of their divers. "I might be working too hard, getting too tired, but if you can hear my breathing, I can't lie to you."

National Institute of Occupational Safety and Health investigators who looked into Smith's death recommended backup air supplies.

Though IFD did not supervise the training, Dezelan promised a committee will again look at the department's safety measures. The Marion County Sheriff's Department also is investigating, as are the Indiana Occupational Safety and Health Administration and the National Institute for Occupational Safety and Health.

State Police Sgt. Emile "Chip" Sunier, 55, led both fatal training dives. The ex-Navy frogman has trained divers since 1982 and has a contract with several local departments. He said he'd been told not to talk about Friday's incident, but his concern was clear. "It will never be over," he said. "This is a life-changing event."

## **Peterson suspends dive training**

<http://www.msnbc.com/local/wthr/M196417.asp?cp1=1>

June 21, 2002 Staff and wire report

**INDIANAPOLIS, June 21** - Indianapolis Mayor Bart Peterson has suspended all dive training by Indianapolis police and fire departments, pending an investigation into training procedures following the deaths of firefighters Paul Jolliff and J.C. Smith in the past two years.

Nationally, there have been only seven such deaths since 1999, according to the International Association of Dive Rescue Specialists. "To have two of these tragic deaths occur in less than two years could be a tragic coincidence,"

said Indianapolis Mayor Bart Peterson. "We have to start with the assumption that there is something here that has to be fixed, and it has to be fixed quickly."

A panel that investigated the August 2000 death of firefighter Smith made two dozen recommendations, but they received little attention, said Tom Hanify, president of the union local.

Members of International Association of Fire Fighters Local 416 voted Wednesday to urge an independent investigation into Jolliff's death.

Jolliff was allowed to dive with a radio that didn't work and did not have a backup air bottle when he drowned in Ropkey Pond on June 14th. No one onshore had a radio to hear divers who did have working systems and no specially trained emergency medical personnel were at the dive site.

Investigators from OSHA combed Ropkey pond near Eagle Creek Thursday in hopes of finding evidence to explain why Paul Jolliff drowned last Friday. Officials said a committee will review the department's safety measures.

National Institute of Occupational Safety and Health investigators who looked into Smith's death recommended backup air supplies. The Marion County Sheriff's Department also is investigating, as are the Indiana Occupational Safety and Health Administration and the National Institute for Occupational Safety and Health.

## **Teams retrace diver's final steps Mayor expected to announce new training procedures today**

<http://www.indystar.com/article.php?dive21.html>

June 21, 2002 By Tom Spalding

On their first mission since the underwater death of a firefighter last week, rescue divers took the kinds of precautions Thursday that critics say might have kept Paul Jolliff alive. The Indianapolis Police Department dive team that returned to the lake where Jolliff died made sure each swimmer had a radio that worked.

Paramedics and an ambulance were standing by, and a boat swept the area with sonar to spot dangerous snags and other unseen hazards. Only the most experienced divers went into the water, and backup divers were ready to help if needed. Those kinds of precautions may well be among the steps cited this morning at a news conference called late Thursday by Mayor Bart Peterson. He is expected to announce changes to dive team training and safety procedures.

He will be joined by Public Safety Director Robert Turner, Indianapolis Fire Chief Louis Dezelan and Indianapolis Police Chief Jerry Barker. Deaths like

Jolliff's are extremely rare nationwide, but his was the second scuba-diving fatality of an IFD firefighter in two years. The shocking accident prompted calls Wednesday night for changes by both the mayor's office and the union that represents the firefighters. Authorities said Jolliff died during a training exercise that involved trying to use air from his tank to inflate either a bladder or a bucket to lift a 45-pound concrete block off the bottom. The water was about 27 feet deep at that point. Investigators are trying to determine whether Jolliff attached himself to that block to free up his hands and then couldn't escape, or whether he somehow got tangled in either debris or a safety rope.

Divers on Thursday in the private lake at Ropkey Armory Museum, at 79th Street and Marsh Road, essentially retraced the swimming pattern taken by Jolliff, 37, and gathered items. Lt. Dennis May of the Marion County Sheriff's Department confirmed that divers were looking for the cinderblock but declined to say what other items were recovered or how exactly they fit into the investigation. Some of the material will be sent to the U.S. Navy Experimental Diving Unit in Panama City, Fla., for analysis. It will take months for the investigation to be complete.

When Jolliff died, he was part of a six-week program sponsored by the city of Lawrence Fire Department that trained divers to become certified underwater rescuers.

## **Report shreds IFD dive-training policies Divers group finds variety of faults in program in which 2 have perished.**

<http://www.indystar.com/article.php?dive31.html>

**July 31, 2002 By Tom Spalding**

A scathing report released Tuesday found sloppy record-keeping, poor standardization of equipment and aggressive training by instructor E.H. "Chip" Sunier created a dangerous atmosphere for Indianapolis Fire Department divers.

Mayor Bart Peterson called for the review shortly after the June 14 death of Paul Jolliff, the second IFD firefighter to die in a diving accident since 2000. Nationally, such fatalities are rare.

Sunier led both deadly exercises. His \$9,000-a-year contract to train IFD divers will end next week. A veteran ex-Navy frogman, he has been helping public safety professionals become certified underwater rescue divers for two decades. Sunier is an Indiana State Police sergeant and has had contracts with several local departments. He declined to comment Tuesday; the status of his other contracts was unknown.

The 66-page report released Tuesday marked the conclusion of the first of several investigations into Jolliff's death in a Northwest side pond. Issued by the National Academy of Police Diving, the review examines a variety of details, from equipment use to training policies. It blamed IFD for failing to demand safer training conditions. "The report was critical of IFD. It's disheartening to read about this," said Fire Chief Louis Dezelan, who is part of a mayoral committee that will study the report and eventually make changes. He said he sees "an opportunity for us to improve our dive training."

The Florida firm is a not-for-profit corporation founded by a group of full-time public-safety divers interested in developing standardized practices. Its report said many of the diving hopefuls under Sunier's guidance were trained too quickly.

Although Jolliff's diving prowess before his death was unknown, the report said students in Sunier's class were expected to go from "nondivers" at the beginning of a 21-day training course to conducting timed drills in zero visibility, in cold water and at significant depth by the end. That was too much too fast, the report said.

The report scolded IFD for not requiring Sunier to provide a detailed lesson plan and questioned why some divers' logs showed that on two occasions, students conducted a shallow dive first and then a deeper dive. The recommended practice is to make the shallowest dive last.

The report said IFD should audit its procedures more often, ensure divers' equipment is standardized and keep inventory lists that include the condition of the gear.

The same report praised the Indianapolis Police Department's dive team training, noting its files were up to date and training was effective. Public Safety Director Robert Turner said the city's action was nothing personal against Sunier. "I try not to put blame on him, but you have to go with the facts," he said.

Last September, Sunier was awarded the State Police's second-highest honor -- the Silver Star Award for Distinguished Service -- for pulling four adults and an infant from a boat stranded in White River June 10, 2001. Sgt. Terry Hall, IPD's dive commander, said divers feel torn. "Chip is obviously a capable man, but obviously there is something wrong. We've had two deaths."

The review is separate from the Marion County Sheriff's Department's investigation. Investigations by the Indiana Occupational Safety and Health Administration and the National Institute for Occupational Safety and Health also are under way.

## **No charges in firefighter drowning**

<http://www.indystar.com/print/articles/3/009878-8143-092.html>

December 20, 2002 By Tom Spalding

Six months after an Indianapolis firefighter died in an underwater scuba diving training exercise, authorities said Thursday that no criminal charges will be filed.

Paul K. Jolliff, 37, accidentally drowned June 14, the Marion County prosecutor's office ruled. The incident occurred during a training dive in a murky Northwestside lake and was the second fatal underwater accident in less than two years for the department. Jolliff's death has prompted significant safety changes in the Indianapolis Fire Department's dive program.

In a two-page report released Thursday, county sheriff's investigators conclude Jolliff died after becoming hooked on a rope tied to a concrete block at the pond's bottom, 50 feet below the surface.

No one is sure why.

Jolliff and a dive partner were trying to tie the block to a rope connected to a five-gallon bucket and blast compressed air from the scuba tank into the bucket, forcing the object to go up. Experts said the exercise was in zero visibility conditions, and that the task was possibly too taxing for the novice divers. The class was led by master instructor and State Police Sgt. Chip Sunier. The sheriff and prosecutor investigations aren't the last. At least two other outside investigations are pending.

The official findings provided little solace for Jolliff's widow, Wendy. "There's no such thing as closure in this because I've got two kids who will never get to know their father," she said.

The city of Indianapolis reached a settlement with Wendy Jolliff on Dec. 10 that will pay her family \$300,000 and cover medical insurance indefinitely for her and her two children, under numerous stipulations. In the settlement, the city also indicates it will sue Sunier for as much as \$1.3 million. "This certainly does not make her whole," said Beth White, the city's deputy corporation counsel. "You can't replace a husband."

But White added: "We want to be helpful."

Additional probes into Jolliff's death may provide further explanation. Authorities know only that, during the exercise, Jolliff realized he was in trouble and removed his weight belt, which should have sent him straight to the surface. Jolliff grabbed at his partner's face mask, forcing the partner to surface. Jolliff's body wasn't found until two hours later.



Call Tom Spalding at 1-317-327-7939.

**Tri4Paul**  
**PSDiver Monthly Issue 48**  
[www.PSDiver.com](http://www.PSDiver.com)

It was June 14<sup>th</sup> 2002 I was just finishing almost 2 weeks of prerequisite dive courses in Ft. Collins, Colorado so I could attend a Public Safety Scuba Instructor course that was set for early winter. As I returned to my hotel room, I was exhausted and ready for some rest. The phone rang and as I answered I heard my buddy back at the firehouse in Indianapolis exclaiming "They lost another one!" Confused, I asked "Who lost another one?" He said he was watching the news as



the Indianapolis Fire Department was searching for one of their divers. Something had happened during a training dive, the diver had disappeared underwater and they hadn't found him yet. This was hard to hear because this same fire department had lost another diver in training less than two years earlier.

My mind suddenly cleared and I remembered I had a very close friend in this class. No sooner had I registered this when my friend asked if I knew a Paul Jolliff. The missing diver was my friend, Paul. Paul had a two year old son and a wife just a couple of months away from giving birth to their second child, a daughter. This was Paul, the man who had helped save my life.

In 1997, I was new to the fire service and just two years into my marriage. The fire department job was going well, we had just purchased our first house and things were looking great on the outside. On the inside however, I was well into my life as a functioning alcoholic (aka liar, cheater and addict). I was killing not only my marriage but myself.

When I hit bottom, I finally decided to get help. Paul Jolliff, a fellow firefighter and his wife Wendy were among the first people I met. Paul was a stranger to me, but he offered to help, took me under his wing and became my friend. Since I really didn't know how to live life on life's terms without alcohol, he had to walk with me until I could start to walk on my own. He sacrificed much of his own time and made sure I was staying active in my own recovery.

Some of my favorite memories of Paul were the times he would volunteer me for service work (required for my ongoing recovery) and not tell me until

after he scheduled them! I would have to drive some pretty far distances to get to some of these places and would think along the way that he probably volunteered me just so he wouldn't have to go. But this was far from the truth. Paul had a very busy volunteer life himself and to this day I am not even sure if I still know all the organizations with whom he worked.

As I got to know Paul better, I was surprised to find out that he usually rode his bike to get to the fire department or to one of his volunteer jobs! He was also an avid runner and was attempting to run a marathon in all 50 states. I used to laugh because he was also a weight lifter and was very stocky, not built like your typical runner. He admitted he was not built for speed but still enjoyed competing and finishing.



After my first year of sobriety, my head was starting to clear (a little) and I was blessed to be hired with a township fire department that was looking very progressive. I was already a recreational scuba instructor and this department wanted to start a dive team. Therefore, part of my job was to assist with the formation of this program. Now at the time, there was a big ego wall up between the city and township fire departments. Because the city's instructors were certified by NAUI, our chief advised me to become a NAUI instructor even though I was already certified by PADI so our team would be more respected by the city. I advised the chief that we would benefit more from some job training that would be specific to safety divers as extensive training in this area wasn't offered by either NAUI or PADI. However he was adamant that I just do the crossover training. I am being brutally honest when I say in the beginning we had no job specific training except what I could glean from others in the profession and from the internet. We were very fortunate that we did not have any serious incidents of our own, but we did have some "close calls" or "near misses" as we call them today.

A few years into the existence of our dive program, the city fire department had their first line of duty death in a dive training accident. JC Smith was about 70 feet underwater serving as the pivot man holding the rope for a circle search pattern. Something went wrong and during the final moments as he attempted to surface he got caught in the descent line and the line he had in the water. The surface support crew finally pulled him out but he later died in the hospital. This tragedy was the catalyst I needed to persuade my chief that job specific training was essential and was sent to Ft. Collins to become a Public Safety Scuba Instructor.

By the grace of God, Paul, and a fellowship of supportive people who took time to love and listen, I now had several years of sobriety under my belt. I was well underway in putting my life and relationship back together. Paul and I no longer saw each other as often as I was able to stand well on my own, but we remained friends. I was able to celebrate with Paul as he welcomed his son into this world and he was able to share my joy in the birth of my own son.

I was about seven years into my sobriety when I left for Ft. Collins. Paul had recently called and left a message about the two of us possibly making a recreational dive in the near future as he was just about finished with his dive class for the city fire department. It was during Paul's last training dive when things went terribly wrong.

Paul and his partner were two divers in a class of ten that were performing their last dive of the day. Their objective was to descend a buoy line, perform a search pattern, tie off to a cement block with a rope and plastic bucket, then using tank air fill the bucket with air and lift it to the surface. There were ten total students in the water at the same time in groups of two spread out around the lake. The students were not tethered or tendered and had no communications except for using the pivot line for rope signals. Together, the students were to drop down at a buoy line and descend to the bottom. One diver served as the pivot man and the other was the search diver. The pivot man held a rope bag and when the search diver completed a full pattern, the pivot diver would let out more line. Each diver also had another small section of rope with a shackle on it that was tucked in their buoyancy compensator. After the search diver located the block, he would signal the pivot man who would swim and meet the search diver where they would both tie off to the block with the short section of rope. Then using their tank air, they would fill the bucket and lift the block to the surface.

On this day, Paul was the search diver and had signaled his buddy that he had found the block. The two met up and at somewhere between 40 and 60 feet of water with zero visibility they tied off to the bucket. Investigators figure it was during this time that Paul had an out of air situation. Paul's buddy felt a weight belt drop over his lap and a hand briefly grab at the side of his mask. At this point, his buddy decided to surface and get help. The one safety diver in a boat with standard scuba for ten divers was alerted and deployed. Since JC Smith had become entangled in the buoy lines during his incident, it was decided to pull the buoy lines in this situation as well. Unfortunately, Paul was not entangled in the lines and the last scene point was now compromised. After desperate repeated searches, it wasn't until hours later that Paul's body was found. It was later discovered that Paul had accidentally tied his short section of rope in such a way that it had become attached to his BC. He never made it to the surface.

Today the dive teams of the city of Indianapolis and the surrounding counties all dive the same system. We train together; have automatic mutual aid

agreements, and many other safety procedures and SOPs have been put into place. We now enjoy the camaraderie we should have had as public safety professionals in the beginning before we lost two of our own.

Two years ago I was thinking about a conversation Paul and I had. Paul had always wanted me to run with him but I never would. When he told me about the Great Floridian iron-distance triathlon that he had completed (a 2.4 mile swim, 112mile bike and a 26.2 mile run), I told him he was crazy! It was after remembering this talk that I decided to run in his shoes, and I started to train and run in shorter triathlons. Last year in 2007, I was able to complete the Great Floridian in his name. People now call me crazy!

Paul had also wanted to run in a sanctioned Ironman event but he never got the chance. I felt the tug on my heart to finish what he had started and am now signed up for the Ironman event in Louisville, KY in August 2008. However, I also wanted my competing in this race to have a positive impact on the dive community. I asked Wendy, his wife, if she would mind if I did a fundraiser in Paul's name for the International Association of Dive Rescue Specialists (IADRS). She said, quote, "I would rather someone celebrate Paul's life and what he loved to do, I may shed tears reading about it but not because it's bad. The only thing that was bad is that he died." Today I am training to compete for Paul in August and am raising money for the IADRS to support their mission in providing up-to-date information, training and an annual conference where public safety divers can meet and network so they won't have to pay the same high price we did.

[www.tri4paul.webs.com](http://www.tri4paul.webs.com)

God Bless,  
Jerry Richert  
Franklin Township Fire Department  
Indianapolis, IN

**We have set up a secure and convenient way to donate at**

<http://www.active.com/donate/tri4paul>

## **Paul Jolliff**

<http://lifesaving.com/firefighters/2002.html>

**Name:** Paul Jolliff  
**Rank:** Firefighter/Engineer  
**Age:** 37  
**Status:** Career

**Years of Service:** 7  
**Date of Incident:** 06/14/2002  
**Time of Incident:** 1230hrs  
**Date of Death:** 06/14/2002  
**Fire Department:** Indianapolis Fire Department  
**Fire Department Address:** 555 N. New Jersey St., Indianapolis, IN 46204  
**Fire Department Phone:** 317-327-6041  
**Fire Department Website:** <http://www.indygov.org/ifd/>  
**Fire Department Chief:** Louis Dezelan  
**Cause of Death:** Firefighter Jolliff drowned while participating in water rescue training as a beginning diver enrolled in a six-week course.  
Funeral: June 19th, 1100hrs @ Trinity Church 3243 N. Meridan Street, Indianapolis.  
**Memorial Fund:** In the name Paul Jolliff, C/O Indianapolis Firefighter's Credit Union, 501 N. New Jersey Street, Indianapolis, IN 46204, 1-800-462-1431.

**TRI4PAUL** <http://tri4paul.webs.com/>

**Paul Jolliff**

Welcome to the Tri4Paul home page. My name is Jerry Richert and I am a firefighter and public safety diver for the Franklin Township Fire Department in Indianapolis Indiana.

In 2007, I completed the Great Floridian iron distance triathlon in honor of my friend Paul Jolliff (the video is on the left of your screen). Paul lost his life in a dive training accident with his fire department.



This year I will be competing in the 2008 Ford Ironman in Louisville, Kentucky to raise funds for the International Association of Dive Rescue Specialists (IADRS).

I hope you find this website both fun and informative. It contains our story and purpose in detail.

Thank you for all who have supported us to date!  
God Bless!  
Jerry

+++++



**NIOSH**  
Fire Fighter Fatality Investigation  
and Prevention Program

## Death in the line of duty...

A summary of a NIOSH fire fighter fatality investigation

July 21, 2003

### **Career Fire Fighter Drowns During Final Dive of Training Course – Indiana**

<http://www.cdc.gov/niosh/fire/reports/face200215.html>

#### **SUMMARY**

On June 14, 2002, at approximately 1243 hours, a 37-year-old male career fire fighter (the victim) drowned during the final dive of a diver training course. The victim and his partner were attempting to locate and bring an object to the surface. They were using a lifting device in zero visibility at a depth of approximately 50 feet. The victim's partner was in a kneeling position on the bottom of the lake attaching his line to the object when the victim knocked him over on his side and attempted to remove his mask. The victim's weight belt landed on top of his partner. The partner surfaced and informed the personnel in the safety boat that the victim was in trouble. The safety diver immediately entered the water and began searching for the victim. Additional divers were shuttled to the site by the safety boat to continue searching for the victim. The victim was recovered over 2 hours later using a sonar device. Advanced life support was initiated en route to a local hospital where he was pronounced dead. NIOSH investigators concluded that, to minimize the risk of similar occurrences, fire departments should

- ***ensure that equipment checks are performed before each dive and any defective equipment is repaired or replaced before the dive takes place***
- ***ensure that all participants in diver training have practiced the specific evolution in a controlled environment such as a swimming pool before attempting the evolution in open water***
- ***ensure that search-and-rescue operations establish and use reference points to conduct searches***



**Dive class staging area**

## **INTRODUCTION**

On June 14, 2002, at approximately 1243 hours, a 37-year-old male career fire fighter (the victim) drowned during the final dive of a 21-day Open Water Self-Contained Underwater Breathing Apparatus (SCUBA) Diver training course.

On June 17, 2002, the U.S. Fire Administration and the International Association of Fire Fighters (IAFF) notified the National Institute for Occupational Safety and Health (NIOSH) of this incident. On July 8, 2002, two Safety and Occupational Health Specialists from the NIOSH Fire Fighter Fatality Investigation and Prevention Program investigated this incident. Meetings and interviews were conducted with the Chief, Senior Deputy Chief, District Chiefs, the Director of Special Operations and Training, fire fighters and divers who were on the scene, the dive instructor, and representatives from the IAFF. NIOSH reviewed copies of the fire department's Standard Operating Procedures (SOPs), the dive training manual, the victim's training records, the victim's autopsy report, and drawings of the incident site. Investigators examined equipment that was the same model as what the victim was wearing. The incident site was visited and photographed.

At the request of the County Coroner's Office, an evaluation of the victim's dive equipment was conducted by the U.S. Department of the Navy Experimental Diving Unit (NEDU)<sup>1</sup>. The air tank was empty when it was delivered to NEDU; therefore, its contents could not be analyzed. The buoyancy compensator (BC) and first stage regulator were tested and found to work as designed. The second-stage regulator failed an exhaust flow test due to the exhaust diaphragm sticking shut. A protective shield ring on the mask, which was designed to keep debris out of the second-stage area, was missing. Sand was found inside the diaphragm area. The exhaust valve was disassembled and cleaned for testing; it worked as designed. It is not known if the protective shield ring was in place

during the dive, or if the problems with the diaphragm existed during the dive or resulted from losing the protective ring during recovery efforts allowing sand to enter the device.

The career fire department involved in this incident consists of 747 uniformed fire fighters. The department serves a population of approximately 400,000 in a geographical area of about 93 square miles.

### Training

The department requires all new fire fighters to complete NFPA Fire Fighter Level I and Level II certification. Upon entering the department, and annually thereafter, all fire fighters must pass a physical examination which consists of medical screening, psychological evaluation, personal fitness evaluation, blood work, physiologic evaluations, random drug testing, and a flexibility test. The victim was taking this diver certification course to become a member of the Dive and Rescue team. He had no other diving experience. Fire fighters on the Dive and Rescue team must pass the above tests in addition to evaluations which include endurance tests, body fat analysis, ear checks, and a blood pressure check. The victim had over 7 years of experience and had completed an extensive list of training courses which included Emergency Medical Technician, Hazardous Material Operations, Building Construction, Ladder Company Operations, and Driver Operator.

### Diver Training

The Advanced Open Water SCUBA Diver course was a multi-agency certification course. The course was taught by an instructor who had been on contract since 1985 with several of the participating departments to provide diver training. The exercise the students were to carry out on their last day of instruction was to descend the buoy line that was anchored with a small weight to the bottom of the lake. They would then conduct a circular search pattern to locate a cinder block. The block had two milk jugs tethered to it that were to be cut and released to float to the surface ([Diagram 1](#)). This would indicate that the teams had found their object and were working on the lift. They would then each attach a 5-foot lanyard that had loops in either end to the cinder block using a metal shackle with a screw pin. The divers would then attach the other end of the lanyard to a 5-gallon bucket. The bucket would then be turned upside down so that the divers could expel air into it and lift the cinder block with both lines ([Diagram 1](#)).

### Weather and Water Conditions

The weather on the day of the incident was reported to be sunny with temperatures in the mid-80s and calm winds.

The body of water in which the incident took place was a private lake with maximum depths near 70 feet. The dive operation was taking place at a depth of 50 feet where visibility was reported to be zero. The water temperature was reported to be approximately 40 degrees Fahrenheit.

## **INVESTIGATION**



On June 14 2002, an Advanced Open Water SCUBA Diver course was being completed which consisted of conducting a final dive at a privately owned lake. The dive class included two certified National Association of Underwater Instructors (NAUI), six dive masters, and a total of 22 students. An instructor briefed the students on the scenario which would test their skills in manipulating equipment to lift an object from the bottom of the lake in zero visibility and cold water.

The staging area where the class was operating from included the dock, a beach, and a loading ramp where individuals were waiting to participate in the class ([Photo 1](#)). One instructor and a dive master in the safety boat placed buoy markers 30 to 40 feet apart in a straight line using the safety boat. The lines for the marker buoys were 50 feet long and were counter weighted so that the depth could be adjusted. The marker buoys were placed at a depth of approximately 50 feet ([Photo 1](#) and [Diagram 2](#)). The crew then sank each block assembly within 5 to 10 feet of the marker buoys and returned to shore.

The dive teams checked in with the beach master and reported their air readings to ensure full tanks were being used before boarding the safety boat. The safety boat dropped each team at their respective buoys with the instruction to wait before beginning their final exercise. After all of the teams were in place at the surface near their buoy, the dive master in the safety boat gave them the signal to begin their dive.

The victim and his partner (Diver #1) were one of six two-person teams to attempt the last dive scenario. Upon receiving the command to begin, they descended the buoy line to a depth of approximately 50 feet to start their search pattern. The search pattern consisted of Diver #1 stationed at the anchor base, while the victim completed a circular search using a pivot line. Diver #1 would anchor a pivot line that the victim would use to conduct the circular search patterns around the buoy line. After each circle pattern, Diver #1 would give two tugs on the line to let the victim know that the pattern had been completed and that additional rope was being released.

The victim made two circles and gave two tugs on the line to indicate to Diver #1 that he had found the buoys attached to the cinder block. Diver #1 followed the pivot line to the victim and was talking to the victim as he swam toward his location. *Note: The victim's underwater communication system was not working properly at the time of the incident. He could hear but could not send transmissions ([Photo 2](#) & [Photo 3](#)).* Diver #1 gave the victim two squeezes on his arm, and the victim returned the two squeezes, which indicated that everything was alright.

The team then began to work on their scenario. Diver #1 started by cutting the milk jugs to release them to the surface. This would indicate to the surface personnel that they had found the block and had begun working on their objective. Diver #1 was in a kneeling position on the bottom and began to attach his 5-foot nylon line to the cinder block using a shackle. As Diver #1 was screwing the pin back into the shackle, the victim attempted to remove Diver #1's facepiece. The force from the victim pushed Diver #1 over on his side, and the victim's weight belt landed on the arm of Diver #1. The victim may have released his weight belt in an attempt to reach the surface.

Diver #1 inflated his buoyancy control device and immediately surfaced and reported to the safety boat that his partner was in trouble. The safety diver immediately entered the water, descended the buoy line, and attached his search line to the buoy line to conduct circular search patterns for the victim. During the safety diver's fourth pattern, the crew on the safety boat raised the buoy line in an attempt to see if the victim might still be attached to the line. This brought up the safety diver, prematurely ending his search. The buoy line was dropped back down away from its initial location. Search patterns were continued off its new location. Additional divers were shuttled to the site by the safety boat to continue searching for the victim. The victim was recovered more than 2 hours later using a sonar device on a boat that was also on location. Advanced life support was initiated en route to a local hospital where he was pronounced dead.

## **CAUSE OF DEATH**

The death certificate listed the cause of death as drowning.

## **RECOMMENDATIONS/DISCUSSIONS**

***Recommendation #1: Fire departments should ensure that equipment checks are performed before each dive and defective equipment is repaired or replaced before the dive takes place.*** <sup>2</sup>

Discussion: Using the buddy system, divers should develop the habit of inspecting each others equipment for correct positioning, adjustment, air pressures, and function before entering the water. Whenever divers are using underwater electronic communication devices, all divers should ensure that the devices are working properly and have fully charged batteries. Divers should test communication equipment on the shore before diving and remain in contact with one another throughout the dive. In addition, personnel on the shore should be able to monitor communication among divers both above and below water through an electronic surface monitor. Any problems (e.g., low air, broken weight belt, malfunctioning communication equipment, etc.) should be reported to the dive instructor, logged, and repaired or replaced before the dive takes place.

***Recommendation #2: Fire Departments should ensure that all participants in diver training have practiced the specific evolution in a controlled environment such as a swimming pool before attempting the evolution in open water.*** <sup>3</sup>

Discussion: The complexity of public safety diving cannot be understated. Whenever new skills and/or equipment are introduced, it is important to gradually increase the level of complexity the diver is expected to master. Pool sessions that gradually increase the level of complexity would allow the diver to master the tasks and skills expected in a controlled situation, thus improving the chance of a positive outcome when the evolution is replicated in an open-water environment. A diver's skills should be evaluated with the

diver wearing the full complement of equipment that would be worn while performing in actual rescue situations. This skill evaluation should include underwater emergency procedures as well as the other skills needed to deliver public safety diving services.

In this incident the victim transported his 5-foot lanyard by attaching it to his vest with a D-ring. He attached one end of the lanyard to the cinder block, while the other end was still attached to his D-ring on his vest. For an unknown reason, the victim attempted to contact his partner. The victim removed his weight belt signifying distress in an attempt to reach the surface. When the victim was recovered, he was found attached to the cinder block by his lanyard. Practicing the specific steps that will be used in open water training dives in a controlled environment (e.g. swimming pool) under close supervision could assist in dealing with factors in a real environment.

***Recommendation #3: Fire departments should ensure that search-and-rescue operations establish and use reference points to conduct searches.*** <sup>4</sup>

Discussion: The establishment of a last-seen reference point should be a dive rescue team's primary objective when beginning search-and-rescue operations. The last-seen point can eliminate a great deal of uncertainty when conducting underwater searches. Establishing a last-seen point consists of three components:

1. Witness interviews
2. Use of reference points and reference objects
3. Physical evidence

In this event, the safety diver had all three components available to begin the rescue operation. He immediately entered the water after obtaining information from the victim's partner and used the buoy line as his reference point. During the fourth search pattern, the crew on the safety boat raised the buoy line, eliminating the reference point for future searches.

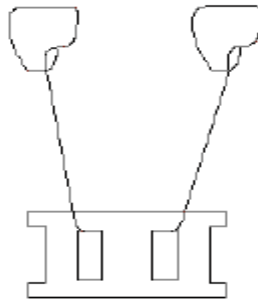
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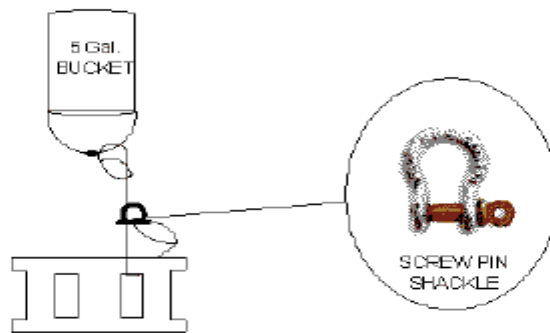
4. Linton SJ, Rust DA, Daniel TD [1986]. Dive rescue specialist training manual. Fort Collins, CO: Dive Rescue Inc./ International.

### INVESTIGATOR INFORMATION

This incident was investigated by Jay L. Tarley and Mark McFall, Safety and Occupational Health Specialists, Division of Safety Research, NIOSH.

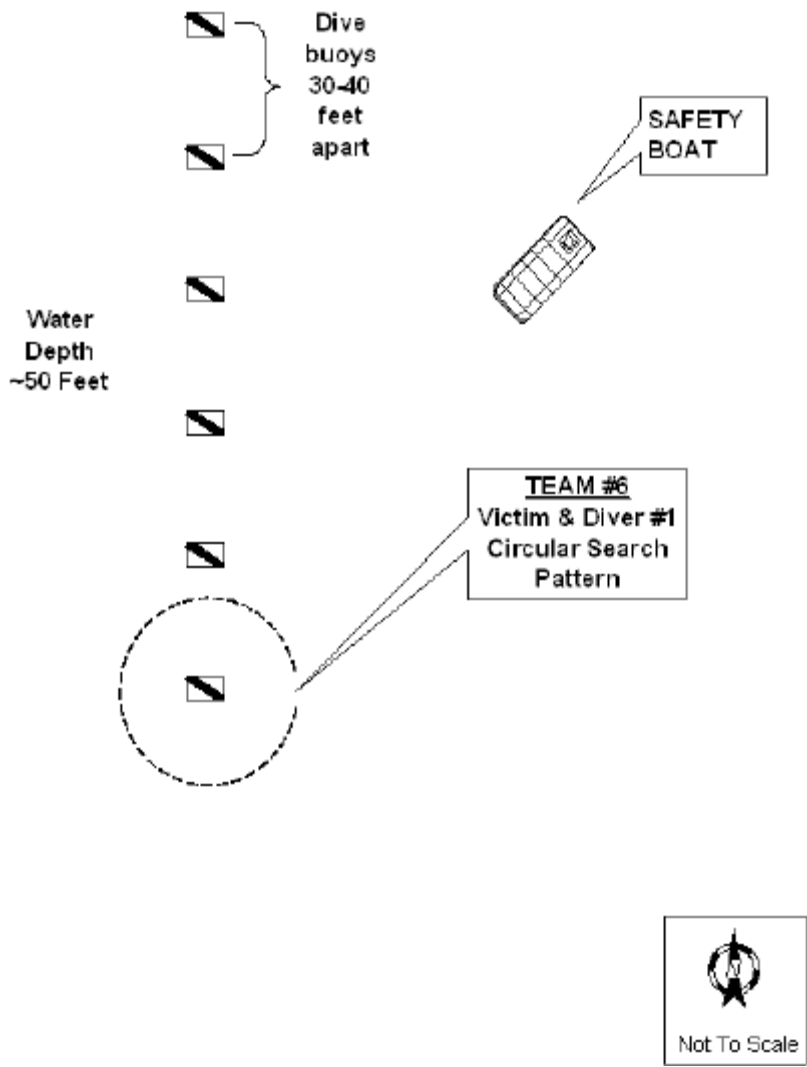


A. Milk jugs attached to cement block with nylon rope.

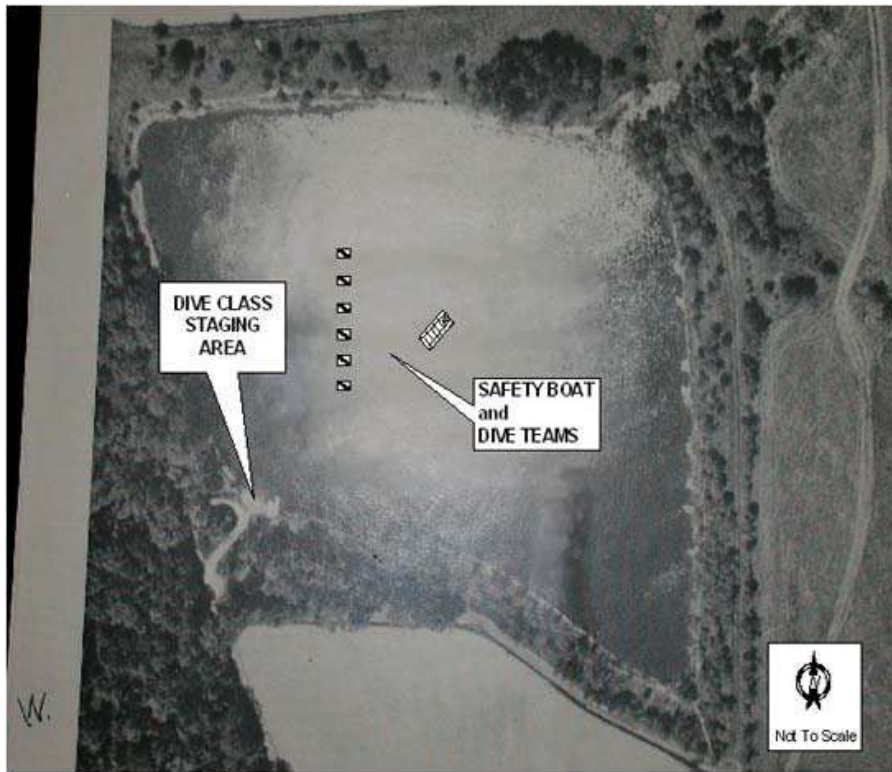


B. Example of the components used to lift the cement block.

**Diagram 1. Block assemblies**



**Diagram 2. Aerial view, dive team setup**



**Photo 1. Aerial photo; Dive site**



**Photo 2. Example of dive mask used by the victim**



**Photo 3. Example of microphone that was not working**