Accident Analysis – 1990

DIVING INCIDENTS 1990

AAd – Drowning April 7, 1990

Peacock Springs, Florida

On Tuesday, April 9, a group of three entered Peacock Spring III, a popular cave diving site in Florida. They were a man (53), his ten-year-old son, and an adult associate. The two adults had become cavern certified in late 1988. The associate had subsequently become cave certified, but the other man had no further cave or cavern diving experience.

The associate led the way into the cavern zone, tying the end of the guideline to a ledge at a depth of 25 feet. Shortly after, a silt-out occurred and the leader, thinking they were all together, reeled up the line as they exited, untying it at the ledge. Above this, they hit clear water and realized the 53-year-old was not with them. A search was attempted but was not successful. The body was found later-it reportedly appeared that fruitless efforts had been made by the victim to find the exit.

REFERENCE:

I) Ed., "Peacock Ill Claims Life of Certified Cavern Diver", Underwater Speleology 17 (2), p. 7.

2) Ed., "Think It Can't Happen to Us? Think Again", Ibid.

COMMENTS:

The dive was ill-conceived. Cave diving is extremely dangerous. With the training received in obtaining Cave Certification (NSS, CDS or NACD) one has a reasonable safety margin. The 53-year-old and his son, who had no training at all, should not have been on the dive.

The victim's lack of experience was reflected in his equipment – he had a snorkel, a fairly heavy weight belt, wrist lanyards on his lights, and no back-up reel. The latter prevented him from conducting a systematic search – the line from a backup reel can be tied and a "home-base" established from which to conduct your search for the exit.

The victim did have adequate light though he had turned them off prior to drowning. Probably in hopes of seeing light from the entrance or from his companions.

Depth also played no factor – the body was recovered at -25 feet depth and the maximum depth was -65 feet. However, "most exposure-suit compression takes place in the first 20 feet of

descent. Such rapid suit compression easily leads to loss of buoyancy control among out-of-practice divers and, consequently, to silt-outs as well.

The site was poorly chosen for novice diving. Peacock III is reported to usually have a coating of light, feathery silt, making it a site only for “advanced” cave divers. Avoiding the deadly silt-outs is a matter of proper equipment and weighting, as well as body control gained from diving experience.

AAd – Drowning April 1990

Troy Spring, Florida

On Saturday. April 14, two divers entered Troy Spring in Lafayette County. Florida, a popular open-water training site. Neither diver had been through formal cave or cavern training. The two had voiced their intention to penetrate a very small cave opening al the -80-foot level and associates had tried to dissuade them, to no avail. The divers had a spool of monofilament fishing line which they reeled out as a guide line.

As they proceeded down into the spring, the strong current caused the lead diver’s regulator to free-flow. Their efforts resulted in rapid breathing which rapidly depleted both their air supplies. They made their way some 55 feet into the cave before the lead diver ran low on air. His companion did not have an octopus, so they had to share a single second stage, passing it back and forth. Meanwhile, the current carried them back toward the entrance. Entangling them in their line. They soon became helpless, so thoroughly tangled that they both drowned, within sight of the surface. The second diver still had 1700 pounds of air left, but could not reach his second stage to use it. When the body recovery took place, it took 10 minutes to cut them free of the tangled line.

REFERENCE: Ed., “Double Drowning Closes Troy"', Underwater Speleology, 17 (2), p. 5.

COMMENTS:

The divers had one small light apiece. They were unused to such activity and used air at an unusual rate. The leader failed to turn back on the use of 1 /3 of his air; they used a “‘notoriously poor substitute for a proper guideline.”

“Although 80 feet is still above the depth at which serious narcosis usually occurs, many divers are at least somewhat impaired at this depth. Additionally, the exertion resulting from an inexperienced diver’s attempt to swim into a strong current can easily bring about the onset of narcosis at depths shallower than that at which it would otherwise occur.”

These divers may have been saved by proper training, but it occurs to this observer that training is no substitute for good sense. Some people simply should not become cave divers.

AAd – Drowning May 11, 1990

Diepolder Sink #2, FL

On the evening of May 11, two divers entered Diepolder Sink #2, in Hernando County, Florida, one of the largest known underwater caves, including depths in excess of 300 feet. One was a 25-year-old man from Hudson, Florida, who had completed a cave diver training course in December 1989. He and his more-experienced buddy planned to visit the downstream portion of the cave; it was his first dive at this site. Visibility was significantly reduced by recent heavy rains. Two other teams of divers were to enter a bit later.

They followed the guideline through the entrance restriction and encountered near-zero visibility at the Junction Room. They took the downstream guideline, breaking into clear water on the upper circuit line. They corrected a buoyancy problem, signaled OK to each other, and began a slow descent on the lower circuit line, heading into the cave.

The lower line lies at a depth of -250 feet. Halfway through the dive, His partner noticed when the 25-year-old momentarily dropped below the line, then continued at a faster pace. This line completes a circuit, taking them back to the Junction Room at a depth of -210 feet. When they reached this point, they had re-entered the silted water. The 25-year-old suddenly lost his grip on the guideline, became disoriented and swam back down into cave. This was not noticed by his buddy or by the other two diving teams which bad been surveying and were now exiting.

He reached the downstream Ballroom and after some wandering found a marked line. His buddy, meanwhile, bad begun decompressing in the entrance basin, but became concerned and searched the basin at his 30-foot stop. Later, he and another diver again dove to the Junction Room but found no trace of the victim.

The body was found the following day by recovery specialists after a 25-minute search, on the bottom, at -241 feet. It took three teams seven hours to complete the body recovery.

REFERENCE:

Dustin Cless, “Cave Diver Drowns at Diepolder Sink Number Two”, Underwater Speleology, 17 (3), p. 6.

COMMENTS:

The victim had logged 75 cave dives and was reportedly known for pushing himself with a desire to emulate more experienced divers. The loss of contact with the guideline was the principal factor in the incident but this, and the resulting disorientation, may be due to the depth of the dive:

“Using compressed air below 130 feet severely impairs most divers. Even more pronounced effects are guaranteed below 200 feet. Beset with narcosis and the accumulated carbon dioxide that results from the unusually strenuous respiration required al depth, the victim apparently succumbed to depth induced blackout. Slowly losing buoyancy, he dropped headfirst some 40 feet before hitting bottom. Recovery divers observed no signs of struggle; the victim’s mask remained in place.” It can be assumed from this description that he drowned after losing consciousness.

It appeared the victim was setting a personal depth record and, excited about seeing new cave, extended past the planned turnaround at 2000 psi air reserve. Using mixed gas might have given him a better chance of survival.

AAd – Drowning May 19, 1990

Otter Spring, Florida

On Saturday, May 19, divers visited Otter Spring in Gilchrist County in north Florida. They were an International Diving Educators Association (IDEA) Instructor Trainer and four newly certified open-water divers, KI, RW, AW, and CG. Otter Spring is a simple basin with a “very advanced” cave leading from the bottom at a depth of -40 feet. The instructor repeatedly admonished the four to stay out of the cave but allowed them to enter the water with lights, violating park rules.

The dive began and the group encountered the cave entrance where the instructor signaled them not to enter. The instructor continued with the dive and RW followed. KI, however, was apparently determined to enter the cave. CG and AW tried to dissuade him but could not, so they followed, hoping to keep him out of trouble.

The surfaces of the cave are coated with fine, feathery silt which was immediately stirred up by the three divers, who became disoriented and after a while began to run out of air.

On the surface, other divers noticed the absence of the three. The commotion alerted Woody Jasper, an expert cave diver who was attending a company picnic at the park. Perhaps he was planning a dive, for he also happened to have his gear with him. He quickly suited up and entered the water.

CG and AW, meanwhile, had lost trace of KI. When one ran out of air, they shared until it was all gone. Fortunately, they had encountered a small air pocket and this sustained them for a short period before it, too, was exhausted of oxygen. The two lost consciousness.

Jasper quickly found the two in the air pocket. Thinking that one of them moved, showing life, he purged some air into the pocket neither victim showed response, or reacted to the offer of a shared octopus, so he pulled one down and towed him at all speed to the surface where other

company employees began to administer CPR. Jasper returned to the air pocket where the second victim had recovered consciousness; he accepted the octopus and was escorted to the surface.

Jasper again returned to the cave and found the body of the third victim, who had apparently drowned some 20-30 minutes earlier. The unconscious victim, RW, responded to the CPR, but, at the last report, remained in critical condition in intensive care in a hospital.

REPERENCES:

I) Ed., “Woody Jasper’s Courage Makes Possible the ‘Miracle at Otter'”, Underwater Speleology, 17 (3), p. 5.

2) Nonna Wagner, “Expert Cave Diver Saves Two Novices; a Third Dies”, St. Petersburg Times, May 22, 1990, p. 1, 14A.

COMMENTS:

The three had no proper equipment or training, nor did they do any planning. The culprit here, however, is simply human psychology. It is obvious that some, perhaps all of us, will at some time deliberately take a life-threatening risk on the pure hope or chance that fate, or whatever, will sustain them. Sometimes we are not sustained.

AAd –Drowning August 1990

Eagle’s Nest Sink, Florida

In August, two divers entered Eagle’s Nest Spring in Hernando County, Florida. One was BP, a “highly experienced” cave diver. He apparently became separated from his partner, and was found unconscious, drowned at -200 feet without a second stage in his mouth. They were using compressed air.

REFERENCE: Marty Moore and Mike Poskey, “We Are Dying”, The National Association for Cave Diving Journal, October-November-December 1990, p. 74.

COMMENTS:

“Diving on air, a person at -150 feet is decidedly mentally impaired. That impairment is increased at -200 feet. Moreover, irrespective of the other gases involved, oxygen ‘can become toxic at depth.'”

“Experienced Cave divers continue to die in accidents that can be primarily attributed to depth. One diver in Uno Spring in 1979, two in Eagle’s Nest in 1982, one in Little Dismal Sink in 1988, one in Diepolder Sink in 1990, and BP in Eagle’s Nest in 1990 … six good divers in eleven years.”

AAd – Drowning October 7, 1990

Devil's Den, Florida

On Sunday, October 7, a group of three divers entered Devil's Den in Levy County, Florida. They were KK, CM and CP. CP was apparently rescue certified for open water but bad no cave or cavern training. He had dived at the site two weeks prior.

At around noon, the three did a dive. Only CP had brought a second set of tanks and went down a second time at about 2: 15 p. m. He proceeded through the cavern area and about 200 feet into the cave area, at about 70 feet depth, he apparently stirred up some silt and ended up in a low, bedding plane passage about 2 feet high, where he ran out of air and drowned. The body recovery crew found "clawing" marks in the silt.

REFERENCES:

I) Kelly Brady, "Recovery Report", October 8. 1990, unpublished. 2 pages.

2) Karen Voyles, "Man Drowns in Cave After Ignoring Diving Conditions", The Gainsville Sun,. October 9, 1990.

3) Ed., "Deaths in Mexico and Florida", Underwater Speleology, 17 (5), September/October 1990, p. 4.

AAd –Drowning October 17, 1990

Sac Actun, Mexico

At 10:30 a.m., a group of eight divers and one tank sherpa arrived at the parking lot six kilometers north of Tulum, in Yucatan, Mexico. It was the fifth day of a six-day group diving affair. All were cave certified. A detailed sketch of the cave system was made and the dive plan was discussed. The plan was to enter the Sac Actun Cenote, traverse the cave and exit Grand Cenote, a trip of 22 minutes, reaching depths of 40 feet. It was explained that about 280 feet "upstream" from Sac Actun they would traverse a temporary, 70-foot gap line with a pink direction-line marker at the start which connected with the permanent line going "downstream" to the Grand Cenote. The lead divers would be installing this temporary line. The group would then retrace their path back to Sac Actun; they were in two teams of four and the second team would reel up the temporary line. At Sac Actun they would recalculate "thirds" and take another passage leading to a third cenote via a formation room and a loop in the passage.

The first leg proceeded well, taking 24 minutes. At the Grand Cenote, a second line was attached and strung out into the large cavern zone, to help guide them back to the cave passage. All had

started the dive with 3000 psi in their double 80 cubic foot tanks and now had 23-2400 psi left with one having 2600.

They spent 15 minutes on the surface and the plan for the remainder of the dive was reviewed twice, again reminding them of the cave layout with a sketch on a dive slate. When one member was in doubt, the plan was reviewed a third time. Everyone agreed that they understood.

They started back, but quickly diverted to one side of the cavern zone to observe a crocodile skeleton. A second delay occurred when a member of the first team dropped his/her mask and a member of the second team retrieved it. They regrouped and continued into the cave zone, the second group about 100 feet behind, reeling in the cavern zone line.

At the 70-foot gap, the first-team leader detached the reel, sending his three teammates ahead. The second team arrived moments later. Three second-team divers started to swim across the gap while the fourth was given the reel and signals were given for him to reel it in while the first-team leader swam ahead to catch up with his group.

The first-team leader caught up with his group at the other end of the 70-foot gap (the pink direction-line marker) and made the required sharp left tum, leading toward Sac Actun. He looked back, saw one second-team member following, and the rest arriving at the pink marker. However, when they arrived at Sac Actun, they could not see following lights.

It was assumed that this was due to the second team suffering a jammed reel; they recalculated "thirds" and proceeded on the third leg of the session, the traverse to the third cenote. A gap line was laid and they swam to the third cenote. The leader was uneasy about the second group and inquired if the others as to the last time they had seen the second group. They agreed the last time was at the pink marker.

The three were told to stay there and the first-team leader went back. At Sac Actun, the second team was not in sight. At the pink marker (the 70 foot gap) he found the gap-line reel had been replaced. He proceeded to the Grand Cenote and found no one. He returned to the third cenote, got his group, and returned to Sac Actun. He then headed in alone, toward Grand Cenote, for one more look.

Meanwhile, the reel diver on the second team had gotten about I /3 of the line reeled in when the leader came hack and signaled for him to replace it. He did so and they swam back to the pink marker, where the leader turned right and headed deeper into the cave system. The other divers followed, including the one who had started to follow the first team. At one point, the leader stopped to check his air supply, then continued. After traversing some 1000 feet, the leader stopped and asked, via his slate, why they hadn't met the first team. They decided to tum back.

One diver still had 1500 psi, the others w□re down to 1000. Shortly, they observed a "snap and gap" line heading to the right. Hoping this was the way to the third cenote, they took it but when 100 feet in found a line arrow pointing the direction they came from, retreated and continued out the main guideline.

One diver's fin strap popped off and there was a delay while his companions helped with it. The fins bad been properly taped, but were of the new adjustable type. Stress increased they had not seen a direction arrow for some time. The two bringing up the rear were now swimming faster and passed their companions, stirring up some silt and disappearing from sight. One of the two who were now last ran out of air and began to share with the other. They were about 600 feet from Sac Actun. The fin strap popped off again and they abandoned it, making swimming more difficult. Two hundred feet later, they dropped a video camera and kept going.

The first-team leader headed toward the pink marker on the way to Grand Cenote and saw three lights heading toward him. As he approached the first two lights, he saw that they were sharing air. These two gave band signals–big trouble behind. They had just passed the faster two, obviously out of air.

The first-team leader swam into the cave and discovered a body dangling limp from an air pocket in the ceiling. He tried pulling it to administer air, but it was too buoyant. Pulling off his regulator, he purged it, sending fresh air into the pocket. Sticking his hand into the air pocket, he felt the diver's face to find it still warm and the diver gulping for air. He placed his long hose regulator second stage into the air pocket and the diver responded, grabbing at it.

After a minute or so of breathing, the diver dropped down from the air pocket. The first-team leader pried the victim's face mask from his left hand and put it in his right hand; the victim put it on and cleared it. Firmly taking the victim's right hand, the leader escorted him the 150 feet to the surface.

The two second team divers sharing air had just made it to the surface on the last of their shared air. Since another diver was still missing, the first-team leader and a second first-team diver returned to the cave. They found the second victim, twenty feet beyond the first, on the floor face up, regulator out or his mouth. They pushed one of their regulators into his mouth with no response. Each diver grabbed and pulled the victim as fast as they could to Sac Actun Cenote. The victim was given mouth-to-mouth resuscitation for five minutes, but it was futile. He was dead.

REFERENCE: Steve Gerrard, "Cave Diver Drowns in Sac Actun", The National Association for Cave Diving Journal, October-November-December 1990, p. 71-73.

COMMENTS:

Everyone was fully cave trained. The deceased had logged 53 cave dives. A continuous guide line was maintained throughout the dive. The only apparent factor in the incident was disorientation, possibly due to unfamiliarity with the cave. I would speculate that in a weightless environment such as this, that even closing your eyes for a short period during which your body chanced to rotate, would be enough to bring complete disorientation. In any case, this well-equipped, well-planned, intelligently carried out dive, by well-trained and experienced divers, resulted in a fatality. Perhaps cave divers lose sight of how dangerous a sport this is. Perhaps a rule that every diver, before a dive, must turn to each of his companions and say, "Well, it was nice knowing you– I may not see you on the surface alive again", might serve to remind them.

It appears that only one diver may have been confused. Two of the survivors stated that they "still understood the dive plan but were lulled into the following-a-leader syndrome.

The rigging of the cave was obviously confusing. The following week it was redone so that no gap now exists between cenotes and pushing further into the cave al the old pink marker now requires a gap line.

I should also say that the plan was rather complicated. Under partial narcosis or dive euphoria/panic, it is obviously difficult to remember anything–keep it simple.

AAd – Drowning November 4, 1990

Peacock Springs, Florida

On Sunday, November 4, DD entered the Olsen Sink Entrance to the Peacock Springs Cave System in Suwannee County in north Florida. DD was an experience and certified cave diver, and was equipped with dual manifolded 104 cubic-foot doubles and an 80 cubic foot stage bottle. He proceeded into the upstream tunnel, with which he was reportedly familiar on a legal, solo dive.

His body was found 150 feet from Olsen Sink. The, 80 was empty, but there was 1200 psi in the 104's. The valve regulator (SPG) had been turned off. When the equipment was tested later, it was found that there was a second stage free-flow malfunction. This may be the reason it had been turned off.

"Davis was presumably then trying to exit and bumped the other valve handle to the backup regulator causing it to shut off or he might have only cranked it open a bit initially and as tank pressure dropped, it no longer was able to allow the backup regulator to function.

It is hypothesized that, under the stress of breathing from a poorly performing backup regulator, the deceased may have forgotten about having turned the primary regulator off (which would have caused his SPG to read zero). He might have concluded a dead SPG and a hard-drawing regulator meant that his doubles were nearly dry, and thus have resorted to his stage bottle."

On the stage bottle a single hose regulator with two second stages was attached. One was found to be sticking. As the deceased tried to exit the cave system in an emergency, there could have been air lost from the second stage not being used. In any case, it was his last dive. The Florida State Parks have since been closed to solo diving.

REFERENCES:

I) Ed., "Cave Diver Drowns in Olsen Sink". The National Association for Cave Diving Journal, October-November-December 1990, p. 70.

2) Ed., “Accident Closes Peacock Springs to Solo Diving”, Underwater Speleology, November/December 1990, p. 3.