



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

2194

Date: January 17, 1990

In Reply refer to: A-90-1 and -2

Honorable James B. Busey
Administrator
Federal Aviation Administration
Washington, D.C. 20591

On September 27, 1989, Grand Canyon Airlines, flight Canyon 5, a de Havilland DHC-6-300, Twin Otter N75GC, crashed during its attempted landing at the Grand Canyon National Park Airport, Tusayan, Arizona. The 2 crewmembers and 8 of the passengers, were fatally injured; of the remaining 11 passengers, 9 sustained serious injuries and 2 sustained minor injuries. No fire occurred.

According to the Federal Aviation Administration (FAA), Grand Canyon National Park Airport is the second busiest airport in Arizona during tourist season, providing more than 80 flights per day to about 650,000 passengers each year. Canyon 5 was operating as a sightseeing flight under 14 CFR 135 from the airport.

The first officer was flying the airplane, and the captain was providing the tour narration. The flight was routine until its arrival back to the airport. Canyon 5 reported 5 miles northwest of the airport in accordance with normal control tower procedures. At 0948:30 local time, the local controller cleared the flight to land. At 0948:34, the flightcrew acknowledged the clearance. This was the last known transmission from the flight. The two air traffic controllers on duty in the tower described the approach as normal, and each diverted his attention from Canyon 5 on short final to locate traffic that was entering the traffic pattern. When they looked back at Canyon 5, it was off to the right of the runway and angling back toward the runway. It continued to climb as it passed the tower and reached an altitude of about 150-200 feet. The airplane then entered a steep left bank to the left of the runway and struck a power line, disrupting airport electrical service. About 0952 the airplane crashed into some trees on a hill on the east side of the runway. Just before final impact, the control tower personnel activated the crash alarm/siren and telephoned 911, but the alarm and the call (near the end of the conversation) were interrupted by a loss of electrical power.

The flight crew of American West Airlines flight 1080 was holding short of runway 21 waiting for their IFR clearance when Canyon 5 made its approach. The crew observed the airplane in a normal attitude, about 5 feet above the runway, as it flew about 1,000 feet down the runway. The first officer observed the airplane bounce on the runway in a normal attitude, but stated that it "looked like [it was] struggling with lots of wind but there was not much wind." He said that if there had been 10-15 knots of wind, the crew of flight 1080 would have felt the effects of it on their airplane. He expected Canyon 5 to touch down again and glanced into the cockpit of 1080 for about 5 seconds. When he saw a large cloud of red dust in his peripheral vision, he looked at Canyon 5 and called the captain's attention to it. Canyon 5 was emerging from the dust cloud in an unusually nose high attitude, and it climbed to about 150-200 feet. The left wing began to drop as the airplane drifted to the left and appeared to be "tail walking" (nose high and oscillating about the vertical axis). Canyon 5 slowly lost altitude as it continued in a steeper angle of bank, and the nose dropped as the airplane rolled to a near-vertical left bank. According to interviews of the flight 1080 crew after the accident, there did not seem to be any reaction from aircraft rescue and firefighting (ARFF) vehicles; about 90 seconds later they asked the tower, "...are you aware of the problem?" A tower controller advised that they were, but that they were having difficulty contacting "Crash 1" (aircraft rescue equipment). The crew notified the America West operations agents on the company frequency to see if they could do anything to help. About 1000, the crew saw a yellow ARFF crash truck as it passed their position, about 8 minutes after the accident.

The Safety Board's continuing investigation of the Canyon 5 accident has found serious deficiencies in the ability of the airport personnel to respond with ARFF equipment in accordance with 14 CFR 139 and thereafter to perform effective rescue and firefighting operations. The deficiencies included late notification of the accident due to inadequate communications, a lack of required firefighting training, a lack of knowledge of the DHC-6-300 airplane, the lack of a mutual aid plan, and the inadequacy of FAA certification inspections for compliance with 14 CFR 139. The airport's ARFF service was certificated by the FAA under 14 CFR 139 as an Index A airport.

When the electrical power and telephone service were lost, the control tower's siren alarm and the 911 telephone call were interrupted. Four airport maintenance personnel, who were also assigned ARFF duties, were to respond with two ARFF vehicles, but remained unaware of the accident until about 0957 when the emergency generator was manually started and the power and telephone service was restored. Although the tower was equipped

with a battery-powered VHF radio, the tower controllers could not communicate with local agencies because telephone service was interrupted. Finally, neither the acting airport manager nor the airport's maintenance personnel had personal radios and thus could not be notified of the accident by the tower until the power was restored.

When electrical power was lost, the acting airport manager, who was unaware of the accident, had to unlock two outer doors and one inner padlocked door before manually starting the emergency generator. He then contacted the tower by telephone and was informed of the accident; he departed for the scene of the accident in his airport vehicle, preceded by Crash 1, about 0959. Maintenance personnel who heard the siren/alarm after electrical power was restored contacted the tower from the ARFF trucks; they were told of the accident and its location. They obtained clearance to enter the taxiway and encountered no difficulties en route to the accident. On-scene, one of the maintenance workers extinguished a small brush fire (with the fire truck turret) caused by the downed power line, and another maintenance worker climbed a hill on foot to get to the airplane. He assisted survivors until units from the USDA Forest Service, the Grand Canyon National Park Service, and the National Park Lodges arrived about 1001. The National Park Service, U.S. Department of the Interior, took charge of the rescue operations. Although two of the four maintenance persons were emergency medical technicians (EMT's), they could render only limited assistance to the survivors because insufficient emergency medical equipment was carried on their trucks. After arriving on scene, one of the maintenance persons had to return with a pickup truck to the ARFF garage for backboards that had been inadvertently left behind

The most severely injured survivors were transported by helicopter to the Flagstaff Medical Center about 70 miles away. The last survivor arrived at the hospital about 1205.

The airport maintenance workers did not disconnect the airplane's battery when they arrived at the scene because they had not received aircraft familiarization training required by 14 CFR 139.319 and, thus, did not know where the battery was located. Only two of the four workers had received any firefighting training, which consisted of viewing slides of structural firefighting. None of the maintenance workers had participated in a live fire drill as required by the FAA. In addition, the Safety Board's investigation found no records to show that any of the maintenance workers had received the minimum required ARFF training.

The airport emergency plan, coordinated with local agencies in July 1985, contained no written agreements with the agencies that would provide medical, firefighting, and law enforcement assistance during airport emergencies. Yearly reviews of the plan and a table top exercise of the plan had not been conducted as required by 14 CFR 139.325.

No records were found to show that a full-scale emergency plan exercise had been held in the 3 years preceding the accident.

The Safety Board is concerned that the deficiencies found in the ARFF services at Grand Canyon National Park Airport were not discovered during the airport certification inspections in 1987, 1988, and on February 9-10, 1989. The serious deficiencies in the airport's ability to respond with timely and effective ARFF services demonstrates inadequate FAA surveillance, inspection, and enforcement of the ARFF regulations. The Safety Board believes that the FAA should reinspect the airport with a special team of inspectors to verify compliance with the provisions of 14 CFR 139. The Safety Board is also concerned that similar deficiencies may exist at other Index A airports as a result of inadequate FAA surveillance. FAA managers need to exercise greater oversight and supervision over airport safety inspectors to assure that airport certification inspections are performed in a manner that will achieve full compliance with 14 CFR 139.

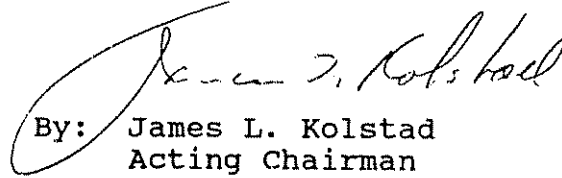
Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Conduct an airport certification inspection with a special team of inspectors at the Grand Canyon National Park Airport for compliance with 14 CFR 139 and order corrective actions where noncompliance is found (Class II, Priority Action) (A-90-1)

Develop and promulgate measures to improve management oversight and supervision of airport safety inspectors to ensure that airport certification inspections are performed in a manner that will achieve full compliance by airport operators with the requirements of 14 CFR 139. (Class II, Priority Action) (A-90-2)

Also in conjunction with its continuing investigation of this accident, the National Transportation Safety Board issued Safety Recommendations A-90-3 through -6 to the Arizona Department of Transportation.

KOLSTAD, Acting Chairman, BURNETT, LAUBER, and DICKINSON, Members concurred in these recommendations.



By: James L. Kolstad
Acting Chairman