National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: November 7, 2007

In reply refer to: A-07-93 through -95

Mr. Robert Butler
Executive Director
Tour Operators Program of Safety
Post Office Box 2773
Seal Beach, California 90740

The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendations in this letter. The Safety Board is vitally interested in these recommendations because they are designed to prevent accidents and save lives.

These recommendations address en route surveillance of Grand Canyon-area air tour operations. The recommendations are derived from the Safety Board's investigation of the September 20, 2003, accident involving an Aerospatiale AS350BA operated by Sundance Helicopters, Inc., and are consistent with the evidence we found and the analysis we performed. Information supporting these recommendations is discussed below. The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendations.

On September 20, 2003, about 1238 mountain standard time, an Aerospatiale AS350BA, N270SH, operated by Sundance Helicopters, Inc., crashed into a canyon wall while maneuvering through Descent Canyon, about 1.5 nautical miles east of Grand Canyon West Airport (1G4) in Arizona.[1] The pilot and all six passengers on board were killed, and the helicopter was destroyed by impact forces and postcrash fire. The air tour sightseeing flight was operated under the provisions of 14 *Code of Federal Regulations* (CFR) Part 135. The helicopter was transporting passengers from a helipad at 1G4 (helipad elevation 4,775 feet mean sea level [msl]) to a riverside helipad designated "the Beach"[2] (elevation 1,300 feet msl) via Descent Canyon.[3]

[1] The brief of this accident, LAX03MA292, can be found on the Safety Board's Web site at <http://www.ntsb.gov/publictn/2007/AAB0703.pdf>.

[2] Sundance designated names for each of its helipads. The Beach helipad is located next to the Colorado River.

[3] Descent Canyon is a tributary canyon to the Grand Canyon and is located outside of Grand Canyon National Park.

Sundance is a member of the Tour Operators Program of Safety (TOPS). The accident flight was part of an advertised tour package in which Sundance pilots flew passengers through Descent Canyon, dropped them off at the Beach helipad for a scenic boat ride on the Colorado River, then picked them up at the Beach helipad later in the day for a return flight to 1G4 through another scenic canyon.

Interviews with passengers who flew on a previous tour flight with the accident pilot, as well as photographic evidence from that flight and videotape evidence from a flight with the accident pilot in 2001, indicated that it was not unusual for the accident pilot to fly the helicopter close to canyon walls and at bank angles, pitch attitudes, and airspeeds that far exceeded those allowed by company policy, TOPS safety guidelines, and some Federal regulations. Also, the investigation revealed that the company had previously received at least two written complaints from passengers about the pilot's flying practices but did not follow through with disciplinary action.

The Safety Board determined that the probable cause of this accident was the pilot's disregard of safe flying procedures and misjudgment of the helicopter's proximity to terrain, which resulted in an in-flight collision with a canyon wall. Contributing to the accident was the failure of Sundance Helicopters and the Federal Aviation Administration (FAA) to provide adequate surveillance of Sundance's air tour operations in Descent Canyon.

Two years earlier, on August 10, 2001, a Eurocopter AS350B2, N169PA, impacted steep terrain during an uncontrolled descent near the Grand Canyon about 4 miles east of Meadview, Arizona.[4] The helicopter was operated by Papillon Airways, Inc., as a 14 CFR Part 135 air tour flight. The pilot and five passengers were killed, one passenger sustained serious injuries, and the helicopter was destroyed by impact forces and postcrash fire. Papillon is also a member of TOPS.

The investigation of this accident revealed that the Papillon pilot also exhibited unsafe flying practices on previous tour flights, such as flying the helicopter toward terrain while deliberately keeping his head turned toward the back of the cabin until the passengers screamed for him to turn around. In addition, the accident site was located in an area where the pilot was known to perform high-speed, diving descents during tours to show passengers what it was like to drive a car off a cliff.

The Safety Board determined that the probable cause of this accident was the pilot's decision to maneuver the helicopter in a flight regime and in a high-density altitude environment, which significantly decreased the helicopter's performance capability, resulting in a high rate of descent from which recovery was not possible. Factors contributing to the accident included the pilot's decision to maneuver the helicopter in proximity to precipitous terrain.

The investigative findings from these two accidents revealed safety issues related to the FAA's surveillance of air tour operations in the Grand Canyon area, the handling of safety-related complaints about tour pilots, the documentation of passenger contact information, and

[4] The brief of this accident, LAX01MA272, can be found on the Safety Board's Web site at <http://www.ntsb.gov/publictn/2004/AAB0402.pdf>.

operator surveillance of tour routes. Specifically, the Safety Board notes that some high-volume Grand Canyon-area tour routes are not receiving periodic en route surveillance by FAA inspectors or the operators, that there is no mechanism for the FAA to become aware of safety-related complaints received by tour operators about their pilots, and that there are no requirements for documenting tour passenger information. The Board has issued safety recommendations to the FAA regarding these issues. The Board also notes, however, that independent safety program audits, such as those provided by TOPS, serve as valuable safety resources that could assist operators with addressing reports of safety-related pilot issues and with performing en route surveillance on repetitively flown commercial air tour routes.

As mentioned previously, both Sundance and Papillon are members of TOPS. As indicated in its literature, the mission of TOPS is to enhance and promote air tour safety and to "provide the public with access to scenic areas while in the care of good, safe, and professional air tour operators." According to the TOPS program overview, approved TOPS operators have committed to "a higher standard of safety, sharing safety knowledge and to self-policing those standards."

The TOPS program outlines management requirements, pilot qualifications and training, maintenance practices, ground support personnel training, and minimum equipment for aircraft. TOPS standards require managers to "establish and enforce standards to ensure that safety is the primary consideration for all air tour operations. These standards include avoiding any perception of a thrill ride, aerobatics,[5] nap-of-the-earth flying or unnecessary abrupt maneuvers." The TOPS operational standards include flight limitations for aircraft bank angles not to exceed 30º and pitch angles not to exceed 10º during tours. However, photographic evidence from a previous Descent Canyon air tour flight with the Sundance accident pilot on the day of the accident documented bank angles as steep as 69º and nose-down pitch attitudes as steep as 55º. This type of flying fails to comply not only with TOPS standards and company policy, but also with Federal regulations with regard to aerobatic flight with passengers on board.

In addition, some tour passengers had previously complained to the company about the accident pilot's flying practices that were not in compliance with TOPS standards. For example, on July 5, 2001, Sundance received a fax from a passenger who had taken a Descent Canyon flight with the accident pilot on June 1, 2001. The passenger stated that, "being a heart patient with … a very dangerous pilot in charge of the helicopter, I thought I was about to die. He flew so fast and dangerous, I could not believe his behavior." Also, in a memorandum dated August 17, 2001, Sundance's chief pilot informed the director of operations that disciplinary action was to be taken against the accident pilot because of an additional customer complaint about his flying. The memo stated that the owner of Air Vegas[6] took a ride from 1G4 to the Beach helipad and reported "that he was asked if he wanted a helicopter ride or an 'E' ticket

[5] According to 14 CFR 91.303, "aerobatic flight means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight." The regulation states that "no person may operate an aircraft in aerobatic flight … below an altitude of 1,500 feet above the surface." In addition, 14 CFR 91.307 states that "no pilot of a civil aircraft carrying any person (other than a crewmember) may execute any intentional maneuver that exceeds, (1) A bank of 60° relative to the horizon; or (2) A nose-up or nose-down attitude of 30° relative to the horizon" unless "each occupant of the aircraft is wearing an approved parachute."

[6] Air Vegas flew passengers to 1G4 to take tours with Sundance.

ride.[7] He received a ride that included abrupt banks[8] and that did not meet the standards [of TOPS]."[9] The memo concluded that "this type of flying is not tolerated at Sundance Helicopters and is grounds for disciplinary action." The company provided the pilot a written reprimand that called for a 1-week suspension without pay; however, the company never enforced the suspension. Additionally, the FAA principal operations inspector for Sundance was unaware of the complaints.

The investigation further revealed that some former Sundance employees and employees of other tour operators were concerned about the accident pilot's flying habits; however, it is not known if these employees voiced their concerns to company management. Following the accident, Sundance implemented a "zero-tolerance" policy with regard to pilot actions that break company rules. According to the Sundance chief executive officer (CEO), company employees participate in providing management with information about observed pilot rulebreaking, and any one instance of intentional rulebreaking is grounds for dismissal.[10]

TOPS members agree to annual independent safety audits, which are conducted by independent evaluators who are paid by TOPS through members' annual fees. According to the July 16, 2003, TOPS safety audit report for Sundance, the audit examined management policy, the company's safety and medical program, flight operations procedures, heliport operations, flight coordination, maintenance, aircraft servicing, ground support equipment, and ground support personnel. The audit focused on Sundance's ground-based operations and did not include announced or unannounced en route flight operations audit activities along any established flight route. According to the final report from the TOPS auditor for Sundance, Sundance met or exceeded TOPS standards, and no remedial action was required. During a postaccident interview, the auditor reported that he had never conducted an audit flight on the accident route. According to the TOPS executive director, TOPS provides its auditors a checklist that requires "en route checks"; however, there is no requirement that the auditors perform such surveillance on all tour routes.

During the investigation of the Sundance accident, investigators found that no en route surveillance of the accident pilot on the accident route had ever been performed by Sundance personnel, FAA personnel, or a TOPS auditor. The Safety Board recognizes that Sundance has the responsibility to ensure pilots' compliance with company policy, including TOPS standards, and that the FAA has the responsibility to ensure adequate surveillance of commercial air tour operations in the Grand Canyon area; shortcomings in these areas are cited as contributing factors to the accident.

---

[7] An "E" ticket ride refers to a classification formerly used by Disneyland® Park for the most thrilling ride attractions.

[8] During a postaccident interview, the Air Vegas chief executive officer stated that the "descent was a little too fast and too showy" and that he was concerned that Sundance would get complaints from passengers about such "hot rod" flying. He stated that he was uncomfortable during the ride, even with his previous Air Force aviation experience, and that he recalled "feeling too close to the right side [of the canyon]."

[9] The TOPS guidelines specify, in part, that tour flights be conducted with bank angles of no more than 30º, pitch angles of no more than 10º, smooth flight transitions, and a maximum speed of 120 knots.

[10] In a July 6, 2007, statement, the CEO stated that, in the preceding 3.5 years, five pilots were fired under the zero-tolerance policy. He stated all of the dismissals resulted from reports to management by other Sundance pilots or employees or from a violation that was witnessed directly by management.

However, the Safety Board is concerned that air tour operators may not be taking appropriate actions, such as remedial training and enforced reprimands, in response to complaints from passengers or other sources regarding unsafe and unprofessional pilot behavior or to ensure that their pilots fly in accordance with company safety standards. Therefore, the Safety Board believes that TOPS should expand the safety audit program to include a review of records of all safety-related complaints and complaint correspondence regarding pilot performance.

Further, the Safety Board also recognizes that independent en route flight checks performed on all repetitively flown commercial air tour routes could supplement FAA surveillance activities and help operators detect and correct any pilot deviations from standard operating procedures during such flights. The Safety Board concludes that, because of the lack of current guidelines mandating that operators perform en route surveillance of all tour routes repetitively flown in the Grand Canyon area, independent auditors, such as TOPS, are an available resource that could assist their respective members with these tasks. Therefore, the Safety Board believes that TOPS should expand the safety audit program to include en route surveillance of all repetitively flown commercial air tour routes in the Grand Canyon area.

The Safety Board notes, however, that TOPS auditors must have a clear understanding of which flights are considered air tour operations to effectively implement en route surveillance of all air tour flight routes. For example, during a postaccident interview, the TOPS auditor for Sundance reported that he believed the accident flight route was not subject to being audited because he considered flights on that route to be on-demand passenger transportation flights, not tour flights. However, as stated previously, Sundance's flights from 1G4 to the Beach helipad were part of an advertised tour package. According to the TOPS executive director, TOPS does not currently define "air tour flight" for its members or auditors; however, he stated that, in his opinion, any flight sold to the public as part of a tour package should be considered a tour flight. The Safety Board concludes that a clear definition of "air tour flight" should be included in the TOPS safety audit program guidance materials to ensure that its auditors and members understand which flights are air tour flights and to ensure the effectiveness of the TOPS safety audit program. Therefore, the Safety Board believes that TOPS should revise the safety audit program guidance materials to include a clear definition of "air tour flight" to ensure that auditors and members effectively implement en route surveillance of all air tour flight routes.

Therefore, the National Transportation Safety Board recommends that the Tour Operators Program of Safety:

> Expand the safety audit program to include a review of records of all safety-related complaints and complaint correspondence regarding pilot performance. (A-07-93)
>
> Expand the safety audit program to include en route surveillance of all repetitively flown commercial air tour routes in the Grand Canyon area. (A-07-94)
>
> Revise the safety audit program guidance materials to include a clear definition of "air tour flight" to ensure that auditors and members effectively implement en route surveillance of all air tour flight routes. (A-07-95)

The Safety Board also issued safety recommendations to the Federal Aviation Administration. In your response to the recommendations in this letter, please refer to Safety Recommendations A-07-93 through -95. If you need additional information, you may call (202) 314-6177.

Chairman ROSENKER, Vice Chairman SUMWALT, and Members HERSMAN, HIGGINS, and CHEALANDER concurred with these safety recommendations.

[Original Signed]

By: Mark V. Rosenker
Chairman