**NATIONAL TRANSPORTATION SAFETY BOARD**
Office of Aviation Safety
Survival Factors
Washington, D.C. 20594

August 21, 2001

# Airport/Emergency Response

**Group Chairman's Factual Report**

## A: ACCIDENT

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| Location: | Aspen, CO |
| Date: | March 29, 2001 |
| Time: | 1902 MST |
| Aircraft: | Gulfstream III, N303GA |
| NTSB Number: | DCA01MA034 |

## B: AIRPORT/EMERGENCY RESPONSE GROUP

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| Chairman: | Steven A. McCreary, National Transportation Safety Board |
| Member: | Mark E. Taylor, FAA Northwest Mountain Region (Airports) |
| Member: | Ray Krebs, Aspen/Pitkin County Airport |

## C: SUMMARY

On March 29, 2001, at 1902 Mountain Standard Time (MST), a Gulfstream III, registration number N303GA, operated by AVJET Corp., collided with terrain about 0.4 miles northwest of the Aspen-Pitkin County Airport, Aspen, Colorado. The airplane was destroyed and the flight crew of 2, one flight attendant, and all 15 passengers were fatally injured during impact with sloping terrain. The accident site was about 100 feet above the airport elevation of 7,815 feet. The flight had arrived under Instrument Flight Rules and had reported the airport in sight. The flight was operating as an IFR flight under FAR Part 135 operations. The weather at 1853 was wind 250 degrees at 3 knots, visibility 10 miles, light snow, few clouds at 1,500 feet, ceiling 2,500 feet broken, 5,000 feet broken. Approximately 10 minutes after the accident, the visibility decreased to 1¾ miles in light snow.

The aircraft impacted terrain at a location approximately 2,400 feet short of the threshold and 300 feet right of the extended centerline of runway 15 (refer to Attachment 1). The crash,

which occurred 34 minutes after official sunset, was on airport property but outside of the airport operations area (AOA).[1]

## D: DETAILS OF THE INVESTIGATION

### 1. Airport Information

The Aspen-Pitkin County Airport (Sardy Field) is located approximately three nautical miles west-northwest of Aspen, Colorado, at a published elevation of 7,815 feet above mean sea level (MSL). The airport opened in 1946, as a private airstrip and was used primarily by the Aspen Institute, forerunner to Aspen Airways. The airport was ceded to Pitkin County in 1956, and opened to the public. The airport is owned and operated by Pitkin County, and the Board of County Commissioners oversees facility and funding decisions. A full time manager oversees the day-to-day operations. Sardy Field is certificated by the Federal Aviation Administration (FAA) at an Aircraft Rescue and Fire Fighting (ARFF) Index B level[2]. The most recent full-scale (triennial) disaster drill was held on September 23, 2000. The most recent FAA annual airport certification inspection took place on July 26-27, 2000.

Sardy Field is equipped with a single, asphalt runway, which was provided with an overlay of Porous Friction Course (PFC). Runway 15/33 is 7,006 feet long and 100 feet wide, and runway 15 is painted with non-precision instrument runway markings. The runway is equipped with medium intensity runway lights (MIRL) associated with a non-precision instrument approach.[3]

### 2. Airport Access

Initially, the runway was unlighted and all flight operations at Sardy Field were limited to day VFR conditions. In 1974 Rocky Mountain Airways installed and controlled a proprietary runway lighting system to enable scheduled night air carrier operations. By 1985 the runway lighting system had been turned over to Pitkin County, and the Air Traffic Control Tower operated the system during which runway lighting after sunset was made available to air carrier operations and for emergency use only. General aviation operations were not provided the same access after sunset.

By September 1989, scheduled air carrier operations were being conducted between 0700 and 2300 hours local time. During the winter months this could include more than six hours of nighttime operations. Airline operations after sunset were justified by Pitkin County and the Board of County Commissioners on the basis of air carrier "demonstrated safety" (i.e., more precise instrument approach procedures and higher crew training standards) and "minimal noise impact" (i.e., operations with stage III (quieter) aircraft).[4] The restriction of general aviation

[1] AOA: That portion of the airport that is contained within the perimeter fencing and considered a controlled access area.

[2] ARFF Index B – 14 CFR Part 139.315/317 - Index B aircraft includes (air carrier) aircraft at least 90 feet but less than 126 feet in length and requires one or two ARFF vehicles carrying a combined minimum of 1,500 gallons of water and Aqueous Film Forming Foam (AFFF) with one ARFF vehicle carrying a minimum of 500 pounds of sodium-based dry chemical or halon 1211.

[3] FAA Advisory Circular 150/5340-24, Runway and Taxiway Edge Lighting System (11/25/77).

[4] Letter to Mr. Nance Earley, FAA Denver Airports District Office, September 26, 1989, from Mr. Brad Christopher, Airport Manager, Aspen/Pitkin County Airport.

operations to the period between 0700 until 30 minutes past sunset was codified by Ordinance 89-3, and approved by the Board of County Commissioners on October 24, 1989.[5]

In 1989, the National Business Aircraft Association (NBAA) and the Aircraft Owners and Pilots Association (AOPA) filed a formal complaint with the FAA, alleging that the existing regulation of airport hours discriminated against general aviation users. On September 25, 1989, the FAA issued Pitkin County a letter of investigation of possible violation of federal grant assurances, and directed the county to provide its rationale for the establishment of the curfew.

The curfew was resolved with the issuance of Public Law 103-305 (passage of the Federal Aviation Administration Authorization Act of 1994), Section 517 (refer to Attachment 2). The law eliminated the policy that restricted general aviation operations between sunset + 30 minutes, and 2300 hours local by establishing criteria under which general aviation operations would be conducted during that time period.[6]

The curfew described in the Airport/Facility Directory current at the time of the accident stated "Airport CLOSED 0600-1400Z [2300-0700 local]. Stage II/III acft only from 1400Z to 30 minutes after sunset by county ordinance. Stage III acft only from 30 minutes after sunset to 0600Z. No departures after 0530Z. All stage I aircraft operations prohibited, violators will be prosecuted" (refer to Attachment 2).

A curfew for stage II operations was instituted by Pitkin County Ordinance 94-27, and dated November 18, 1994 (refer to Attachment 2). The ordinance defined 'nighttime operations' as "that period daily defined as one-half (1/2) hour past sunset, local time, and airport closure as set out in Sections 6-37 [2300 hours local]." Additionally, the ordinance required that all turbojet, non-commercial aircraft "…engaging in nighttime operations at Sardy Field shall be required to be in compliance with, or exempt from, "FAR Part 36, Stage III" regulations…." The Gulfstream III is a Stage II aircraft.

### 3. Airport Beacon

Sardy Field has an airport beacon located atop the airport terminal building for night and instrument meteorological conditions (refer to Attachment 1). The beacon provides a standard clear/green, revolving beam for visible identification of the airport. The beacon is shielded on its east, south and west sides towards rapidly upsloping terrain. The northern quadrant of the beacon is unshielded allowing pilots of aircraft arriving from the north to visually acquire the airport.

The Airports/Emergency Response Group Chairman visually inspected the airport beacon on the evening of April 5th, 2001, and no discrepancies were noted.

### 4. Runway End Identifier Lights (REIL)

[5] An Ordinance of the Board of County Commissioners of Pitkin County, Colorado, finding a necessity to regulate the noise generated by flight operations associated with Sardy Field, establishing a total ban on operation by Stage I aircraft[s] and regulating the hours of operation of all aircraft, Ordinance 89-3, approved and adopted on October 24, 1989.

[6] Refer to Public Law 103-305 (08/23/94), Federal Aviation Administration Authorization Act of 1994, Section 517.

The REIL is an FAA facility. It was installed and is owned by the FAA's Airways Facilities (AF) Division and is located outboard, left and right of the threshold lights for runway 15. The REIL (replacement system) was installed on November 18, 1997 (refer to Attachments 1 and 3). No commissioning flight inspection for the REIL system was conducted following the installation, and no flight inspection was required because the REIL did not affect the instrument approach minimums (refer to Attachment 4).[7] AF is responsible for maintaining the REIL system. The system has three levels of intensity and is controlled from the airport traffic control tower (ATCT).

The REIL system was not (nor was it required to be) equipped with baffles (a box enclosing each lamp assembly designed to prevent the pilot from looking directly into the high-intensity lights during approach).[8] The airport installed continuous fences (flash shields) around the original REIL lamp assemblies. When the new REIL was installed in 1997, the FAA designed and installed replacement fences (flash shields) along the east, northeast and northwest sides of each lamp assembly. The top of the fencing was set at two inches above the height of the associated flasher head (refer to Attachments 3 and 4).

The last reported corrective action associated with the REIL system was documented on an FAA inspection report (Form 8240-19), and dated March 1, 1999 (refer to Attachment 4). This corrective action related to a user complaint over the obscuration of the left light when on a normal 3.0-degree glide path. According to the documentation, the left REIL light was found to be obscured by a small fence installed in front of the light. The height of the light was adjusted and rechecked satisfactory.

AF personnel inspected the REIL system February 19, 2001, and no discrepancies were noted. The REIL system and associated fences were examined following the accident and found to be within the design criteria specified in the layout and installation details. Both bulb housings were observed to be angled upwards approximately 10 degrees above the horizon, and outward approximately 15 degrees (from the extended runway centerline), as required by FAA Order 6850.2A (refer to Attachment 4).[9]

AF conducted an evaluation of the REIL system subsequent to the accident, and no discrepancies were reported. The Airports/Emergency Response Group Chairman inspected the REIL system on the evening of April 5th, 2001, and both lights were observed to be functional and visible.

### 5. Medium Intensity Runway Lights (MIRL)

Runway 15/33 is equipped with Medium Intensity Runway Lights (MIRL). The longitudinal spacing between individual lights was determined during an inspection by the Airports/Emergency Response Group Chairman to be approximately 200 feet between individual light units, consistent with the standards set forth in the appropriate FAA Advisory Circular (AC) 150/5340-24.[10] The last 2,000 feet of rollout lighting on runway 15 was amber in accordance with AC 150/5340-24. Split red and green threshold lights were installed at the approach ends of

[7] Memorandum to the Airports/Emergency Response Group Chairman from Dave Moehring, FAA/ANM-473 of May 2, 2001, referencing FAA Order 8200.1A, paragraph 218.32.
[8] FAA Order 6850.5C (March 27, 1995), Chapter 2, Section 13, Runway End Identifier Lighting (REIL) System
[9] FAA Order 6850.2A (December 17, 1981), Chapter 4, Installation Criteria – Runway End Identifier Lights (REIL)
[10] FAA AC 150/5340-24 (September 3, 1973), Runway and Taxiway Edge Lighting System

both runways 15 and 33. The lights installed were configured with 8 across each threshold, 4 in each group equidistant on either side of the centerline in accordance with the criteria established in AC 150/5340-24 for an instrument runway. The runway lighting system is designed to provide the pilot with azimuth (lineup) information while visually conducting the approach/landing (refer to Attachment 1).

The Airports/Emergency Response Group Chairman inspected the runway/threshold lights on the evening of April 5th, 2001, and all lights were observed to be functional, of the proper color and orientation, and were visible.

**6. Precision Approach Path Indicator (PAPI)**

The PAPI is an FAA facility. It was installed and is owned by the FAA's AF Division, and is sited along the left side of runway 15 approximately 1,000 feet upwind of the runway threshold (refer to Attachments 3 and 5). The PAPI was commissioned on February 8, 1999, as a replacement to the FAA's previously owned/maintained Visual Approach Slope Indicator (VASI) system. AF is responsible for maintaining the PAPI system. The system is designed to provide visual vertical (glide slope) guidance for the pilot, but provides no azimuth (lateral) guidance.

According to FAA Order 6850.2A[11], the PAPI must be aimed such that no obstacle(s) penetrate a surface defined as being one degree below the Light Housing Assembly (LHA) unit 3 aiming angle as measured from a point on the runway centerline, 300 feet short of the PAPI array and extending 10 degrees left and right of the extended centerline for a distance of four nautical miles. The defined aiming angle (from 6850.2A) for LHA unit 3 was 2.83 degrees (refer to Attachment 5).

A commissioning flight inspection for the PAPI system was conducted following the 1999 installation. However, as the PAPI did not affect the approach minimums, no flight inspection was required (refer to Attachment 5)[12]. At the time of commissioning, FAA Form 8240-19 "Flight Inspection Report" stated in the "REMARKS" section: "O-11-053/8 special inspection to replace VASI system with PAPI system, satisfactory. Glide slope angle verified using AFIS [Automated Flight Inspection System]. Due to terrain, PAPI is unusable beyond 7 degrees right of runway centerline. NOTAM [Notice to Airmen] issued through DEN [Denver] FSS (2/8/99) and NFDC [National Flight Data Center] notified for publication (2/17/99). ATCT [Air Traffic Control Tower] and maintenance advised of the results of the inspection" (refer to Attachment 5). The Airport/Facility Directory (A/FD) in effect on March 29th, 2001, as well as the most current Airport Master Record copy (FAA Form 5010) stated in the "Remarks" section "Rwy 15 PAPI unusable byd 4 NM from rwy thld and byd 7 (degrees) rgt of rwy centerline." The clause "due to terrain" was not included in the 5010 printout or the Airport/Facility Directory (refer to Attachments 2 and 6).

Prior to the commissioning, AF determined that there was an obstacle penetration of the 1.83 degree defined surface for the PAPI. This penetration occurred 8.83 degrees right of the extended runway centerline just inside the four mile limit. The subsequent flight check was

[11] FAA Order 6850.2A, Visual Guidance Lighting Systems, Chapter 5

[12] Memorandum to the Airports/Emergency Response Group Chairman from Dave Moehring, FAA/ANM-473 of May 2, 2001.

conducted per the procedures established in FAA Order 8200.1, U.S. Flight Inspection Manual[13] and the flight check crew reported that in order to maintain terrain clearance they could fly no further right of the extended centerline than 7 degrees.

AF conducted an evaluation of the PAPI system in the early morning hours (~0200MST) of Friday, March 30, 2001. The evaluation revealed that LHA units 1, 2 and 3, were all angled within acceptable tolerances (refer to Attachment 5), i.e. within +/- 6 minutes (0.10 degree) of the required angular setting. LHA unit 4 measured 2 degrees 13 minutes rather than the nominal setting of 2 degrees 30 minutes (17 minutes low and 11 minutes beyond the acceptable tolerance level).

LHA units 1 through 4 are arranged perpendicular to the runway centerline and spaced equally apart, with LHA unit 1 closest to the runway and LHA unit 4 most distant (refer to Attachment 5). The PAPI system is designed such that when the aircraft is established on a 3.0 degree glide path as projected from the properly calibrated PAPI LHA assemblies the pilot will see LHA units 1 and 2 as red and LHA units 3 and 4 as white (refer to Attachment 5).

The PAPI system underwent a routine pre-accident inspection by AF personnel on the afternoon of February 13, 2001, and the system was found to be within acceptable tolerances. A review of the Technical Performance Record (TPR) for the PAPI, which included 12 quarterly inspection records, from the time of commissioning up to the time of the accident revealed no pattern of discrepancies.

In a memorandum from the FAA's Northwest Mountain Regional Manager, Airway Facilities Division (ANM-400), dated May 3, 2001, it was reported that the practice of logging "as left" LHA angles on the TPR forms during periodic inspections had been in place since the facility was commissioned (refer to Attachment 7). The FAA's Rocky Mountain System Management Office (SMO) changed the procedure to record "as found" values in addition to "as left" values on April 4, 2001.

The Airports/Emergency Response Group Chairman conducted a visual inspection of the PAPI lights on the evening of April 5th, 2001, and all lights were observed to be functional and visible.

### 7. Lead-in Lighting System (LDIN)

According to a schematic provided by the FAA, a LDIN lighting system had been designed for Sardy Field. The exact installation date is not known. However, a "Night VFR Safety Study" conducted by Pitkin County referenced a January 1975 "county lead-in light hearing." The date of the FAA schematic was July 31, 1975, with two revisions noted on January 6th and 14th, 1976. The schematic depicted a series of seven sets of strobe lights (six doublets and one triplet) mounted on poles generally following the right-of-way for the abandoned Denver & Rio Grande Western Railroad track, located along the east side of the Roaring Fork River (refer to Attachment 1). As such, the LDIN lights were not oriented along the extended centerline of runway 15. Rather, the first doublet was located approximately 2,000 feet west of the extended centerline, the second doublet was located on the extended centerline, the third doublet was located approximately 2,000 feet east of the extended centerline, the fourth

[13] FAA Order 8200.1, U.S. Flight Inspection Manual, paragraph 204.324 Obstruction Clearance

doublet was located approximately 1,000 feet east of the extended centerline, the fifth doublet was located approximately 800 feet east of the extended centerline, the sixth (a triplet) was located approximately 500 feet east of the extended centerline, and the seventh and last doublet was located on the extended centerline. The LDIN lights began approximately five nautical miles from the threshold of runway 15 and the longitudinal spacing between the lights gradually decreased approaching the runway threshold. A reference on the schematic, which was annotated by an arrow directed midfield on the east ramp, stated "FAA ATCT CALL 118.4 Mhz THREE BRIGHTNESS INTENSITY LEAD-IN LIGHT SYSTEM (OFFICIAL DAYLIGHT USE ONLY)."

On May 11, 2001, Mr. Richard Nelson, a retired FAA Facilities and Equipment Engineer who had been assigned to the FAA's Rocky Mountain Region, was interviewed by the Airports/Emergency Response Group Chairman. He indicated that he was familiar with the LDIN light system and reported that the system was engineered as part of an offset LDA/DME approach to the airport. The public approach lay north of the airport and across the extended runway centerline. The LDIN light system was designed to allow the pilot to transition from the LDA approach to a visual right turn following the lights to the runway. The LDA/DME approach was never installed. The LDIN lights were installed by the FAA on a short-term (2-3) year basis, after which they were removed.

According to a Xerox of a Rocky Mountain Airways approach chart for the proprietary "TALAR" Microwave Landing System (MLS) runway 15 procedure, dated October 27 (1970's decade), a series of 7 strobe lights were depicted (refer to Attachment 8). A Jeppesen airport diagram for Sardy Field, dated March 2, 1990, referenced LDIN lights and noted that the system consisted of "7 strobes beginning 5.0 miles" (refer to Attachment 8).

A report by the FAA Flight Standards Service titled "Night VFR Operations in Visual Meteorological Conditions at Aspen-Pitkin County Airport/Sardy Field, Colorado," dated April 13, 1992, listed 8 recommendations. The recommendations included (in part) "encourage the airport management to consider recommissioning a lead-in strobe light approach system to runway 15" and if such lights were recommissioned "ensure steps have been taken to publicize the availability of the lead-in light system to airmen by placing this information in the Airport/Facility Directory."

**8. Obstruction lighting**

The Airports/Emergency Response Group Chairman conducted a visual inspection of the obstruction lights within the airport's authority as depicted on the June 1993 National Ocean Survey Airport Obstruction Chart (OC) on the evening of April 5th, 2001, and all lights were observed to be functional and visible (refer to Attachment 9).

**9. Aircraft Rescue and Fire Fighting (ARFF)**

Sardy Field's ARFF response vehicle was a 1993 Oshkosh TB-1500 four-wheel drive unit, radio call sign "ARFF 699." This vehicle had a 1,500-gallon water capacity, 205 gallon AFFF (Aqueous Film Forming Foam) capacity, and carried 500 pounds of Purple-K dry chemical. The vehicle individually met the requirements of 14 CFR 139.317(b) as the airport's

Index B response vehicle.[14] The Aspen Fire Protection District (AFPD) also maintained a U. S. Tank four-wheel drive tender at Sardy Field, radio call sign "TENDER ONE." This vehicle had a 3,000 gallon water capacity and 30 gallon AFFF capacity, and was capable of delivering a mix of water and AFFF by hand line. The vehicle was also capable of connecting directly to ARFF 699 and supplying water at a rate of 1,500 gallons per minute.

The primary emergency alarm system at Sardy Field was a siren located atop the ARFF building and activated solely by means of a toggle switch located in the Sardy Field ATCT cab. The back-up alert system was a red crash phone located in the ATCT cab. The phone was a continuous-ring hot line, which simultaneously connected the Sardy Field ATCT cab to 1) the ARFF communications center located at the airport ARFF station, 2) the airport operations office located within the terminal building, and 3) the Aspen Fire Department dispatch office located at the Aspen/Pitkin County Communications Center. The Air Traffic Group interviewed the Sardy Field Airport Traffic Control Tower local controller on duty at the time of the accident (refer to Air Traffic Group Factual Report). The local controller reported that about 1902 "…She noted the airplane was rolling rapidly to the left…" and "…immediately reached for the crash phone…." She continued, reporting, "…She hit the emergency siren switch to notify ARFF right as she saw an explosion…."

A timed re-recording of communications from the evening of the accident on the 911 telephone channel for the Aspen/Pitkin County Communications Center (APCCC) indicated that at 1901:53 local time, 911 dispatch received the initial Alert III notification from the Aspen ATCT. The re-recording indicated that the general radio tone-out from dispatch was placed at 1903:41 to all Aspen fire and ambulance units, as well as ARFF 699.

The Fire Chief for the Aspen Fire Protection District (AFPD), Chief Daryl Grob, reported in a telephonic interview that TENDER ONE was the first fire fighting equipment to arrive on scene. The vehicle was staffed with two firefighters. One firefighter attacked the fire with a 1-3/4 inch hand line and the fire was extinguished in approximately 10 minutes time. He also reported that the initial on scene incident commander was Orrin Moon. The AFPD Incident Report as well as the Incident Recall Log showed that five pieces of firefighting equipment responded (TENDER ONE, Engine 5, Engine 6, Engine 8, and ARFF 699). Additionally, two utility vehicles (R1 and R2) responded, and at least two medical units. A total of 30 personnel from AFPD responded (refer to Attachment 10).

The ARFF Crew Chief on duty at the time of the accident was Cindy M. Johnson. Ms. Johnson reported in a telephone interview that she was located in the ARFF station at the time of the crash phone notification and siren alert. She reported that at the time the crash phone rang she, accompanied by a second firefighter, departed the ARFF station in ARFF 699 and proceeded towards the standard staging site which was the A-3 taxiway midfield (refer to Attachment 1). She further reported that while en route to A-3 she became aware that the accident site was north of the airport near Shale Bluffs and changed her destination to the main gate providing access from the airport operations area to the airport frontage road (refer to Attachment 1). At 1903:28, she contacted Sardy Field ATCT ground control radioing that she "would like emergency information." The controller responded advising of an "Alert III" condition, identified the type and registration of the aircraft, and the approximate location as the

[14] 14 CFR 139.317(b) (1) One vehicle carrying at least 500 pounds of sodium-based dry chemical or halon 1211, and 1,500 gallons of water, and the commensurate quantity of AFFF for foam production.

"Shale Bluffs" area. Following this information, and at 1904:22, she radioed, "ARFF 699, we will respond."

At 1904:57, a male voice identified as Vernard Oliver (call sign OPS 856), the duty airport operations officer, radioed on ground control "ARFF 699 stand down."

At 1905:42, Sardy Field ATCT ground control advised ARFF 699 that the accident site was off airport.

At 1905:52, ARFF 699 radioed APCCC on the "AspenFire" tactical channel (158.775 mega Hertz transmit and 153.855 mega Hertz receive) and requested "AspenFire, could you please page Peter [Director of Aviation for the Aspen airport], the airport manager" and that he was "off airport. I want to verify that I am to respond."

Ms. Johnson reported in her interview that she was advised by Mr. Oliver to "Stand down" while positioned at the airport main gate. She radioed Mr. Oliver and asked the he call the Director of Aviation to get authorization to leave the airport. She further reported that about three minutes later Mr. Oliver radioed her providing clearance to leave the airport.

At 1908:28, ARFF 699 radioed Sardy Field ATCT ground control that "ARFF 699 is off airport." Ms. Johnson estimated that it took about 45 seconds to travel the 6,000 feet from the airport main gate to the crash site and that TENDER ONE was already at the site upon her arrival.

Under Title 14 CFR Part 139.319[15], the requirements for airport ARFF, including reduction in ARFF capability, are described as follows:

> (a) Except as provided in paragraph (c) of this section, each certificate holder shall provide on the airport, during air carrier operations at the airport, at least the rescue and firefighting capability specified for the Index required by 139.317….
>
> (c) Reduction in rescue and firefighting. During air carrier operations with only aircraft shorter than the Index aircraft group required by paragraph (a) of this section, the certificate holder may reduce the rescue and firefighting to a lower level corresponding to the Index group of the longest air carrier aircraft being operated.
>
> (d) Any reduction in the rescue and firefighting capability from the Index required by paragraph (a) of this section in accordance with paragraph (c) of this section shall be subject to the following conditions:
>
> (1) Procedures for, and the persons having the authority to implement, the reductions must be included in the airport certification manual.
> (2) A system and procedures for recall of the full aircraft rescue and firefighting capability must be included in the airport certification manual.
> (3) The reductions may not be implemented unless notification to air carriers is provided in the Airport/Facility Directory or Notices to Airmen (NOTAM), as appropriate, and by direct notification of local air carriers.

[15] [15] 139.319 Aircraft rescue and firefighting: Operations requirements

The Aspen/Pitkin County Airport Certification Manual (ACM) contained one specific mutual aid agreement. This agreement, which discussed off airport events, was titled "Mutual Aid Agreement for Emergency Medical Services," and addressed only medical aid.

Such "off airport" responses may occur when mutual aid agreements with local communities have been established and appropriate procedures, including the regulatory requirements of Title 14 CFR 139, have been followed. Guidance for "off airports" responses is provided in FAA Order 5280.5B[16]. Specifically, Section 330, paragraph C states, in part:

> c. Off Airport Response of ARFF Equipment.
> The ACM/ACS should include procedures for repositioning ARFF vehicles to maintain required Index response capabilities and/or conditions and procedures for reducing ARFF Index when the required vehicles/personnel/agents are unavailable to respond to an emergency. This includes those situations when equipment and personnel are on or off the airport responding to an emergency and are unavailable to provide the published index capabilities. Procedures must include notifying the carriers of a reduced index through normal air carrier notification procedures and use of NOTAM's. While airport operators should not be encouraged to respond to off airport nonaircraft emergencies, it is recognized that mutual aid agreements may call for this support in certain circumstances. Since the concept of mutual aid relies heavily on this sharing of support, it is recommended that mutual aid use of ARFF equipment be very limited. If it is used, the agreement should provide for immediate return to the airport as soon as structural or other relief equipment arrives.

According to Sardy Field ATCT ground and local control communications recorded at the time and following the accident, Air Wisconsin flight 666, a Bae-146 aircraft called for taxi at 1900:39. Flight 666 was a regularly scheduled air carrier flight scheduled to depart Aspen at 1905 destined for Denver.

At 1908:48, the ATCT ground controller radioed Ops One (OPS 856) and inquired whether the airport was open or closed.

At 1908:54, OPS 856 responded stating that the airport was "closed to commercial traffic because we don't have crash fire rescue here right now."

At 1909:04, the ATCT local controller radioed, "Air Wisconsin 666, airport management advises that the airport is closed to commercial operations. Do you want to taxi back to the ramp?"

At 1911:22, Air Wisconsin 666 contacted ground control stating "Air Wisconsin 666, like to taxi back to the gate."

According to the Airport Operations Logbook, a NOTAM under the initials "VO" was issued at 2135 on the evening of the accident closing the airport to all traffic.

[16] FAA Order 5280.5B Airport Certification Program Handbook.

On April 5, 2001, the Sardy Field Fire Chief issued a memorandum to all airport ARFF staff stating in part: "Effective immediately, ARFF 699 may leave the Airport Operations Area for downed aircraft emergencies at the discretion of the Crew Chief, with permission of the on-duty Operations Officer (Airport Director approval is not required)." Refer to Attachment 10 for additional details.

Steven A. McCreary
Airport/Emergency Response
Group Chairman