



National Transportation Safety Board

Washington, D.C. 20594
Safety Recommendation

SP-20
Log 1910G

Date: September 3, 1986

In reply refer to: A-86-94

Mr. Robert W. Grant
President
National Fire Protection
Association (NFPA)
Batterymarch Park
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On August 2, 1985, at 1805:52 central daylight time, Delta Air Lines (Delta) flight 191, a Lockheed L-1011-385-1, N726DA, crashed while approaching to land on runway 17L at the Dallas/Fort Worth International (DFW) Airport, Texas. While passing through the rain shaft beneath a thunderstorm, flight 191 entered a microburst which the pilot was unable to traverse successfully. The airplane struck the ground about 6,300 feet north of the approach end of runway 17L, hit a car on a highway north of the runway killing the driver, struck two water tanks on the airport, and broke apart. Except for a section of the airplane containing the aft fuselage and empennage, the remainder of the airplane disintegrated during the impact sequence, and a severe fire erupted during the impact sequence. Of the 163 persons aboard, 134 passengers and crewmembers were killed; 26 passengers and 3 cabin attendants survived. 1/

DFW Airport Department of Public Safety (DPS) personnel responded quickly and efficiently and contributed significantly to saving the lives of a number of seriously injured victims. However, the Safety Board's investigation of this accident uncovered several problems with the DFW Airport Emergency Plan, including emergency response communications procedures, which, under other circumstances, could adversely affect the survival of some persons and the medical treatment of others.

At 1814 the DPS Communications Center began notifying off-airport police, fire, and ambulance agencies to request assistance as prescribed in the FAA-approved DFW Airport Emergency Plan. The Communications Center operator used a checklist provided for mutual-aid agency notification. The checklist required 21 telephone calls (many with alternate numbers), two radio notifications, and two off-airport alert broadcasts. In addition, the operator was simultaneously required to monitor the airport's primary police radio channel. Forty-five minutes elapsed from the time of the accident to the time the operator was able to complete notification of off-airport agencies. The Safety Board believes the amount of time taken to request assistance from agencies, which may have been needed for lifesaving activities, is excessive.

1/ For more detailed information, read Aircraft Accident Report--"Delta Air Lines, Inc., Lockheed L-1011-385-1, N726DA, Dallas/Fort Worth International Airport, Texas, August 2, 1985" (NTSB/AAR-86/05).

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Parkland Hospital in Dallas, Texas, was initially advised of the crash at 1819 by the DFW Airport paramedic unit. The DPS Communications Center directly notified Parkland Hospital at 1831 and John Peter Smith Hospital in Fort Worth, Texas, at 1828. Hurst-Eules-Bedford and Northeast Community Hospitals were not notified although both are closer to DFW and both received injured persons from the crash. None of the hospitals received information on victim status or intended destinations.

The Safety Board believes that had more persons survived with serious injuries, the lack of coordination could have resulted in an inability of area hospitals to cope properly with the number and types of casualties involved.

The National Fire Protection Association (NFPA) recently issued guidance material on this subject: "NFPA 424 M, Manual for Airport/Community Emergency Planning. Chapter 3, Section 6.5 of the Manual states:

The plan should designate a medical transportation officer whose responsibilities include:

- (a) Alerting hospitals and medical personnel of the emergency.
- (b) Directing transportation of casualties to hospitals.
- (c) Accounting for casualties by recording route of transportation, hospitals transported to, and casualty's name and extent of injuries.
- (d) Advising hospitals when casualties are en route.
- (e) Maintaining contact with hospitals, medical transportation, the senior medical officer, on-scene command post and the command post.

In this accident, the inadequate communications between DFW Airport and the hospitals had no detrimental effect on the survival of injured persons; however, the Safety Board believes that had more persons survived with serious injuries, the lack of coordination could have resulted in an inability of area hospitals to cope with the number and types of casualties involved. The investigation determined that the task of coordinating with nearby area hospitals is not specifically assigned in the DFW Airport Emergency Plan.

The adjacent communities of Irving, Grapevine, and Hurst, Texas, did not receive specific requests for ambulances. The ambulance company in Hurst overheard the DFW Airport radio alert of the crash and responded quickly after calling DFW Airport to confirm the accident. Ambulances from Grapevine were not requested until the Grapevine Fire Chief met with the DFW Fire Chief at the accident site at 1840. The city of Irving received no requests for ambulances although the fire chief dispatched one Emergency Medical Service Unit to the area to inquire whether ambulance assistance was needed.

Although the DFW Airport Emergency Plan contained procedures for requesting mutual-aid ambulances, off-airport agencies did not clearly understand what assistance was being requested. In some cases, only fire units were dispatched when ambulances were also expected.

At the time of the Delta accident, 6 years had elapsed since the last full-scale exercise of the DFW Airport Emergency Plan. This interval was excessive and most probably contributed to the difficulties experienced by the DPS personnel with off-airport notification procedures and with procedures in the assembly area for off-airport units. The Safety Board recognizes that during any large emergency response effort which involves multiple jurisdictions, communications and coordination problems are likely to occur; however, thorough planning, training, and periodic full-scale drills can reduce such difficulties appreciably. An evaluation of periodic communications exercises would have shown that (1) the communications operator could not complete the required notifications within a reasonable time, and (2) the system for alerting off-airport ambulances and hospitals was incomplete. Once identified, these discrepancies could have been corrected.

For example, the Safety Board's investigation of an accident at Detroit Metropolitan Wayne County Airport on January 11, 1983, 2/ also revealed some problems with notification procedures outlined in the emergency plan. The plan had not been fully exercised since September 1978. The airplane involved carried a container of radioactive material (RAM), which fortunately was not breached in the accident. However, none of the effective Federal, company, and local regulations or agreements which outlined airport hazardous material notification procedures were implemented. It was fortuitous that the airport operations employee overheard a discussion of the RAM shipment and notified the onscene commander. This type of situation might have been avoided if the notification procedures had been periodically tested and evaluated. Currently, there is no requirement to conduct such communications tests. Guidelines provided for certification inspectors in Federal Aviation Administration (FAA) Order 5280.5 recommend that the emergency plan contain notification procedures. The Safety Board believes the investigative evidence clearly shows that notification procedures cannot be assumed to be effective unless periodic, thorough tests and evaluations are conducted.

During the Safety Board investigation of this accident the director of the DFW Airport DPS stated informally that in the future DFW Airport intends to conduct full-scale exercises of the DFW Emergency Plan every other year. During alternate years, disaster drills will be conducted in one of the four adjacent communities on a rotating basis.

The Safety Board believes that full-scale tests of emergency plans and procedures should be conducted periodically at certificated airports. As a result of its study of airport certification and operations, 3/ the Safety Board recommended on April 16, 1984, that the FAA:

Amend 14 CFR 139.55 to require a full-scale demonstration of certificated airport emergency plans and procedures at least once every two years, and to require annual validation of notification arrangements and coordination agreements with participating parties. (A-84-34)

2/ Aircraft Accident Report--"United Airlines Flight 2885, McDonnell-Douglas DC-8 54F, N80530, Detroit, Michigan, January 11, 1983" (NTSB/AAR-83/07).

3/ Safety Study--"Airport Certification and Operations" (NTSB/SS-84/02).

On August 6, 1984, the FAA replied that it intended to revise 14 CFR Part 139 to require full-scale demonstration of emergency plans and procedures where practicable and that the required timing will be "variable from 2 to 4 years based on the air carrier activity level at each airport." On October 23, 1985, the FAA issued Notice of Proposed Rule Making (NPRM) No. 85-22 containing proposed amendments to 14 CFR Part 139; however, the NPRM did not contain requirements for periodic demonstrations of certificated airport emergency plans and procedures.

The Safety Board believes that these recommended actions can become critical to the effective handling of mass casualty disasters and that assignment of responsibility for accomplishing these tasks should be specifically addressed in airport/community emergency procedures. Based on the flight 191 accident, the Safety Board believes the DFW Airport DPS should revise its emergency communications procedures to provide for timely and effective coordination with all the applicable mutual-aid agencies.

Although the Safety Board recognizes that the overall effectiveness of the emergency response to the August 2, 1985, accident was excellent and contributed significantly to saving lives, the Safety Board is concerned that communications problems like those outlined above could hinder effective emergency response under different circumstances in the future.

Therefore, the National Transportation Safety Board recommends that the National Fire Protection Association:

Advise its Technical Committee on Aircraft Rescue and Firefighting of the circumstances of the emergency response to the accident at Dallas/Fort Worth International Airport, Texas, on August 2, 1985. (Class II, Priority Action) (A-86-94)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "...to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (Public Law 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations and would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter. Please refer to Safety Recommendation A-86-94 in your reply.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and LAUBER and NALL, Members, concurred in this recommendation.

By: 
Jim Burnett
Chairman