



National Transportation Safety Board

Washington, D.C. 20594
Safety Recommendation

Date: March 18, 1993

In reply refer to: A-93-31 and -32

Mr. David Z. Plavin
Director of Aviation
The Port Authority of New York and New Jersey
Number 1 World Trade Center
Room 65W
New York, New York 10048

On Sunday, March 22, 1992, about 2135 eastern standard time, a Fokker 28-4000 (F-28), N485US, operating as USAir flight 405, crashed during an attempted takeoff from runway 13 at LaGuardia Airport, Flushing, New York. The airplane was operating under Title 14, Code of Federal Regulations, Part 121, as a scheduled passenger flight from Jacksonville, Florida, to Cleveland, Ohio, with a stopover at LaGuardia Airport. There were 47 passengers, 2 flightcrew members and 2 cabincrew members on board. The captain, one of the cabincrew members, and 25 passengers received fatal injuries. Impact forces and the subsequent fire destroyed the airplane. Instrument meteorological conditions prevailed at the time of the accident, and a thin layer of wet snow covered the runway.¹

The National Transportation Safety Board has determined that the probable causes of this accident were the failure of the airline industry² and the

¹For more detailed information, read Aircraft Accident Report--"Uncontrolled Collision with Terrain, USAir Flight 405, Fokker F-28, N485US, LaGuardia Airport, Flushing, New York, March 22, 1992" (NTSB/AAR-93/02)

²For the purposes of this report, "airline industry" includes government and industry organizations responsible for and capable of studying the problems associated with aircraft icing hazards, and disseminating information to flightcrews about these problems, and for developing technology and requirements to minimize such hazards.

Federal Aviation Administration to provide flightcrews with procedures, requirements, and criteria compatible with departure delays in conditions conducive to airframe icing and the decision by the flightcrew to take off without positive assurance that the airplane's wings were free of ice accumulation after 35 minutes of exposure to precipitation following deicing. The ice contamination on the wings resulted in an aerodynamic stall and loss of control after liftoff. Contributing to the cause of the accident were the inappropriate procedures used by, and inadequate coordination between, the flightcrew that led to a takeoff rotation at a lower than prescribed air speed.

The cab coordinator on duty at the time of the accident stated that he saw flames and a fireball emanating from the crash site. He listened to the emergency conference line for about 2 seconds and announced "Code 44"³ twice. He thought no one was on the line to hear him, and he advised the supervisor that he was not getting a response. He told the supervisor to go to the brown telephone, which was the hot line to the police garage. The cab coordinator returned to the emergency conference line and repeated "Code 44," received a faint response, and gave the accident location as "Runway 13 and taxiway November." He then hung up the telephone and activated the pull box (Box 37) alarm.

The incident commander of the Port Authority of New York and New Jersey Police stated that while he was working in his office at the police emergency garage, he heard both the crash alarm and the pull box alarm sound at around 2134 to which he and the Airport Rescue and Fire Fighting (ARFF) vehicles responded.

On August 13, 1991, 9 months prior to the accident, control tower personnel submitted an Unsatisfactory Condition Report (UCR) stating that the "crash phone" was unacceptable because it was "impossible to hear responses due to the poor quality of the phone lines." The reply that was attached to the UCR stated that the Port Authority of New York and New Jersey had taken steps to correct the system but that no estimated "date for replacement was available." In the meantime, a backup telephone was used.

³"Code 44" is referring to "Call 44" that is defined in the LaGuardia Airport Certification Manual, page 17-9, as: "An actual or impending crash. Major aircraft accident or fire. Aircraft in dire emergency. Full response as indicated in the aircraft emergency plan will go into effect."

The Safety Board concludes that the difficulties the controller experienced with the emergency conference line did not delay or hinder the emergency response because ARFF personnel heard the controller's first transmission. However, the Safety Board believes that a potential for a breakdown in communications exists until the deficiencies in the system are corrected. The Port Authority should expedite the replacement of the emergency telephone system.

During the accident sequence, the airplane struck and destroyed two of three outermost visual approach slope indicator boxes, an ILS localizer antenna structure, and a water pump house. The Safety Board is concerned that the location of these nonfrangible obstructions in the vicinity of runway 13/31 significantly contributed to the severity of the damage incurred by the airplane. The locations of the dike, the instrument landing system localizer ground plane antenna, and the pump house met the current Federal Aviation Administration criteria for frangibility since both structures and the dike were just outside the 500-foot runway safety area. However, Advisory Circular (AC) 150/5300-13, Airport Design, Appendix 8, par. 4 states: "The ROFA (Runway Object Free Area) is a result of an agreement that a minimum 400-foot (120 m) separation from runway centerline is required for equipment shelters, other than localizer equipment shelters. Also, International Civil Aviation Organization (ICAO), Annex 14, AERODROMES, Volume I Aerodrome Design and Operations, 8.6.1. states: "Unless its function requires it to be there for air navigation purposes, no equipment or installation shall be: a) on a runway strip,⁴ a runway end safety area, a taxiway strip...if it would endanger an aircraft...."

The localizer ground plane antenna, pump house, and dike did not meet the criteria of AC 150/5300-13, Appendix 8 or the ICAO 8.6.1. The Safety Board understands the difficulties that LaGuardia faces in that regard, since the airport is physically restrained by size, location, and water boundaries.

The Port Authority Assistant Director of Aviation testified that the pump house, which was destroyed in the accident, was to be replaced by a newer underground pump house, which was not technically feasible at the time of the construction of the original pump houses. The Safety Board is pleased that the Port

⁴From 3.3.3. "A strip including a precision approach runway shall, wherever practicable, extend laterally to a distance of at least: - 150 m (approximately 411 feet) ..."

Authority took this initiative to further improve the safety of the environment around runway 13/31. The Safety Board urges the Port Authority to continue this initiative and replace the two other pump houses, which are adjacent to runway 13/31, with buried installations.

As a result of this accident, the National Transportation Safety Board recommends that the Port Authority:

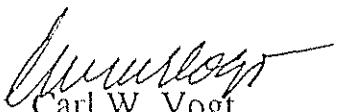
Expedite the replacement of the emergency telephone system between the air traffic control tower and ARFF units at LaGuardia Airport. (Class II, Priority Action) (A-93-31)

Modify or replace all pump houses adjacent to runway 13/31 so that they are not obstructions to airplanes. (Class II, Priority Action) (A-93-32)

Also, the Safety Board issued Safety Recommendations A-93-19 through 30 to the Federal Aviation Administration, A-93-33 to the Department of Transportation, and A-93-34 to the New York City Health and Hospitals Corporation.

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 recommendations in this letter. Please refer to Safety Recommendations A-93-31 and A-93-32 in your reply.

Chairman VOGT, Vice Chairman COUGHLIN, and Members LAUBER, HAMMERSCHMIDT and HART concurred in these recommendations.

By: 
Carl W. Vogt
Chairman