



U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

# SAFO

Safety Alert for Operators

SAFO 08006  
DATE 1/25/08

Flight Standards Service  
Washington, DC

[http://www.faa.gov/other\\_visit/aviation\\_industry/airline\\_operators/airline\\_safety/safo](http://www.faa.gov/other_visit/aviation_industry/airline_operators/airline_safety/safo)

*A SAFO contains important safety information and may include recommended action. SAFO content should be especially valuable to air carriers in meeting their statutory duty to provide service with the highest possible degree of safety in the public interest. Besides the specific action recommended in a SAFO, an alternative action may be as effective in addressing the safety issue named in the SAFO.*

**Subject:** 14 CFR Parts 91 and 135, Flight Into Known or Forecast Severe Icing Conditions

**Purpose:** This SAFO clarifies for operations conducted under Title 14 of the Code of Federal Regulations (14 CFR) part 91 and/or 135 the definition of severe icing and the need to immediately exit severe icing conditions when encountered. This also serves to increase pilot awareness of the dangers associated with flight in severe icing conditions and emphasize the importance of following Airplane Flight Manual (AFM) limitations and procedures established covering encounters with these conditions.

**Background:** The National Transportation Safety Board (NTSB) presented a report to the Federal Aviation Administration (FAA) Administrator regarding the October 31, 1994 fatal accident of American Eagle ATR-72 flight 4184 at Roselawn, Indiana. The NTSB's investigation resulted in several findings, but ultimately, the most important findings regarding the effects of icing conditions on aircraft were:

- The negative effect and extent to which in-flight icing conditions affected properly certificated aircraft performance; and
- the limited information available to the flight crew with respect to the severity of the conditions they were experiencing.

The NTSB was concerned that 14 CFR part 91, § 91.527, part 135, § 135.227 and Advisory Circular (AC) 91-74 "Pilot Guide—Flight In Icing Conditions" implied authorization for flight into severe icing conditions. The NTSB felt that the wording which stated:

"Except for an airplane that has ice protection provisions that meet the requirements in section 34 of Special Federal Aviation Regulation (SFAR) No. 23 (for § 91.527) or section 34 of appendix A (for § 135.227) or for transport category airplane type certification, no pilot may fly an airplane into known or forecast severe icing conditions"

implied authorization to fly in severe icing conditions if the aircraft were equipped as per the applicable SFAR or appendix.

On October 30, 2002, the FAA issued Notice N 8400.33, Air Carrier Transportation—Flight Into Known or Forecast Severe Icing Condition, to address the concerns and recommendations of the NTSB. N 8400.33 clarified the definition of severe icing and stated that when a pilot encounters severe icing, immediate flight diversion is necessary. This notice met the intent of the NTSB’s recommendation for air carrier operations (i.e., 14 CFR parts 135 and 121) but didn’t address aircraft operated under 14 CFR part 91. The notice subsequently was cancelled.

AC 91-74 was revised (AC 91-74A) on December 31, 2007. This revision includes additional clarification on the definition of severe icing and provides guidance for immediately exiting severe icing conditions for flight operations conducted under all operational rules contained in 14 CFR parts 91, 121, 125, and 135. The revised definition of severe icing is:

*Severe Icing - The rate of ice accumulation is such that ice protection systems fail to remove the accumulation of ice and ice accumulates in locations not normally prone to icing, such areas aft of protected surfaces and any other areas identified by the manufacturer. Immediate exit from the condition is necessary.*

To address the NTSB’s concerns of implied authorization for flight into severe icing conditions, the FAA has updated regulatory and advisory circular text. AC 91-74A, Appendix B, “Regulatory Issues Related to Icing;” paragraph 1, “Part 91 Icing Regulations,” subparagraph (c), “Severe Icing;” and paragraph 4, “Part 135 Icing Regulations,” subparagraph (c), “Severe Icing” each now include the following bolded type:

**Note: Even airplanes approved for flight into known icing conditions should not fly into severe icing. Many Airplane Flight Manual Limitations Sections require an immediate exit when these types of conditions are encountered.**

**Recommended action:** Directors of Safety and Directors of Operations should ensure the above definition and guidance for exiting severe icing conditions is included in their flight manuals and their approved pilot training program. Operators should ensure that their pilots are aware of the information contained in this SAFO and in AC 91-74A.

[Link to AC 91-74A, "Pilot Guide: Flight in Icing Conditions"](#)

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