



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: October 14, 2003

In reply refer to: A-03-45 and -46

Honorable Marion C. Blakey
Administrator
Federal Aviation Administration
Washington, D.C. 20591

During the National Transportation Safety Board's investigation of a January 25, 2002, incident¹ at Ted Stevens Anchorage International Airport (ANC), investigators learned of air traffic control (ATC) procedures at ANC that permit departing aircraft to taxi into position and hold at a runway intersection but do not impose nighttime or visibility restrictions on such operations. The Safety Board is concerned that these procedures allow an unsafe condition to exist and do not comply with Federal Aviation Administration (FAA) ATC requirements, and believes that the procedures should be modified to eliminate the unsafe condition.

As shown in figure 1, ANC has three runways: 32/14, 6L/24R, and 6R/24L. The end of runway 32 intersects with runway 6L. Flight crews of aircraft departing runway 32 normally depart from the displaced threshold of runway 32 and do not occupy the intersection of runways 32/6L; however, they may use the full runway (known as the runway 32 extension²) by informing ANC tower controllers on initial contact that they wish to do so. These aircraft then line up with runway 32 and hold in the intersection of runway 32/6L, where they may be required to wait for some time depending on other traffic in the area. Other aircraft may be conducting approaches to runway 6L while runway 32 departures are holding at the intersection.

¹ About 0243 Alaska standard time, China Airlines flight 011, an Airbus Industrie A-340-300, B-18805, was cleared for takeoff on runway 32 but took off from a taxiway instead. No injuries were reported and the airplane was not damaged. The full description of this incident, ANC02IA011, can be found on the Safety Board's Web site at <<http://www.ntsb.gov>>.

² According to airport certification and air traffic staff at the FAA Alaskan regional office, the runway 32 extension was constructed to permit heavy jets to depart from ANC at higher gross weights than would be possible without the additional takeoff distance.

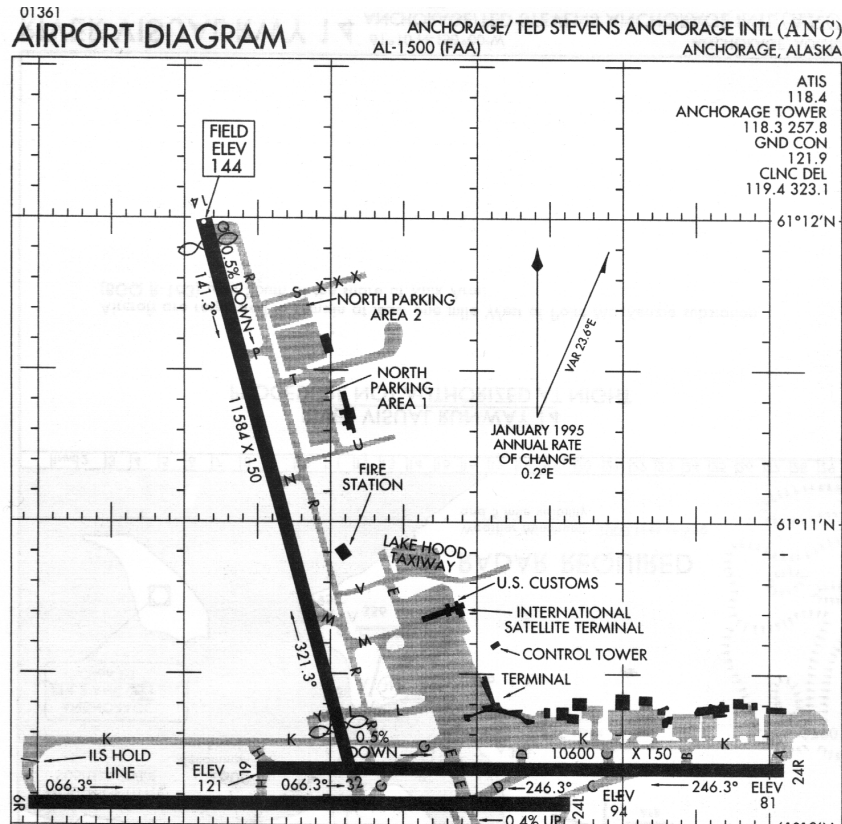


Figure 1. ANC Airport Diagram

ANC tower staff stated that FAA Order 7110.65 “Air Traffic Control,” paragraph 3-9-8, “Intersecting Runway Separation”³ is the basic separation rule applied between runway 32 departures and runway 6L arrivals. In addition to the separation requirements of paragraph 3-9-8, ANC tower controllers also follow separation directives defined in the facility’s standard operating procedures manual. Paragraph 4-5-6(c) in the manual directs controllers to ensure that large jets and turboprop airplanes departing from runway 32 are past taxiway M or, depending on the size of the aircraft, at a point between taxiways L and M (see figure 1) before any aircraft using runway 6L crosses the threshold or begins takeoff roll.

The Safety Board is concerned that the ANC procedures do not comply with current FAA requirements regarding intersecting runway operations. Specifically, they do not impose any nighttime limitations or visibility minima. FAA Order 7110.65, paragraph 3-9-4(f), “Taxi Into

³ Paragraph 3-9-8 states, in part, “separate departing aircraft from an aircraft using an intersecting runway, or nonintersecting runways when the flight paths intersect, by ensuring that the departure does not begin takeoff roll until one of the following exists:

a. The preceding aircraft has departed and passed the intersection, has crossed the departure runway, or is turning to avert any conflict.

b. A preceding arriving aircraft is clear of the landing runway, completed the landing roll and will hold short of the intersection, passed the intersection, or has crossed over the departure runway.”

Position and Hold,” states, “Do not authorize an aircraft to taxi into position and hold at an intersection between sunset and sunrise or at anytime when the intersection is not visible from the tower.” These rules would apply specifically to aircraft departing runway 6L if they were holding at the intersection of runway 32/6L. However, the rules are not being applied if the aircraft is holding at the intersection for takeoff on runway 32. With aircraft approaching runway 6L, the threat of a collision with aircraft holding at the intersection is nearly the same regardless of the runway intended for takeoff.

The safety objective of paragraph 3-9-4(f) is to prevent collisions between arriving aircraft and other aircraft holding on the arrival runway downfield from the threshold. The application of the rule is straightforward when aircraft are landing, holding, and departing on the same runway.⁴ However, the FAA has chosen not to apply paragraph 3-9-4(f) when airplanes are allowed to taxi into position and hold at the runway 32/6L intersection if the departure is intended to be on runway 32; under this circumstance, the FAA does not consider that airplanes are holding on runway 6L.

The Safety Board considers holding aircraft in the path of landing traffic to be a significant safety risk at times of limited visibility and has expressed concern about this issue previously. In particular, on July 6, 2000, the Board issued Safety Recommendation A-00-69 following several incidents in which arriving aircraft were cleared to land on runways occupied by other aircraft. Safety Recommendation A-00-69 asked the FAA to amend FAA Order 7110.65, paragraph 3-9-4, to discontinue the practice of allowing departing aircraft to hold on active runways at nighttime or at any time when ceiling and visibility conditions preclude arriving aircraft from seeing traffic on the runway in time to initiate a safe go-around maneuver. This recommendation is currently classified “Open—Unacceptable Response.”⁵

The Safety Board acknowledges that when properly applied, the procedures contained in FAA Order 7110.65 and the ANC facility standard operations manual should maintain separation between departing aircraft using the runway 32 extension and those arriving on runway 6L. However, FAA and LAX procedures in effect in 1991 should have prevented the USAir/Skywest accident (discussed in footnote 4) but failed to do so. Accordingly, after evaluation of the benefits and hazards of procedures that result in aircraft holding on runways downfield from the

⁴ According to air traffic procedures management staff, the FAA instituted the nighttime and visibility restrictions in paragraph 3-9-4(f) following a runway collision that occurred on February 1, 1991, at Los Angeles International Airport (LAX), Los Angeles, California. USAir flight 1493 (USA1493), a Boeing 737, was landing on runway 24L when it collided with Skywest flight 5569 (SKW5569), a Fairchild Metroliner, which was positioned at an intersection on runway 24L for departure on runway 24L awaiting clearance for takeoff. As a result of the collision, both airplanes were destroyed. All 10 passengers and 2 crewmembers aboard SKW5569 were killed, as were 20 passengers and 2 crewmembers aboard USA1493.

⁵ In response to Safety Recommendation A-00-69, the FAA amended Order 7110.65, paragraph 3-9-4, to prohibit an air traffic controller from authorizing an aircraft to taxi into position and hold when the departure point is not visible from the airport traffic control tower unless that aircraft’s position can be verified by airport surface detection equipment (ASDE) or the runway is used for departures only. In a July 1, 2003, letter, the Safety Board stated that because the FAA allows departing aircraft to hold on an active runway even when the tower cannot see the intersection if the aircraft’s position can be verified by ASDE, its action was not consistent with the intent of the recommendation, which was to increase situational awareness of the flight crew of arriving aircraft. If the pilot of the arriving airplane sees another airplane on the runway and believes it to be unsafe, the pilot can execute a missed approach. However, when the pilot cannot see the runway, the pilot relies on the controller.

threshold while arrivals are in progress, the FAA elected to limit the use of such procedures to daytime and only when the intersection is visible from the tower.

Because ANC's procedures do not impose nighttime or visibility restrictions when departing aircraft are holding at the runway 32/6L intersection, the Safety Board believes that the FAA should modify the ATC procedures used at ANC when departing aircraft are authorized to use the full length of runway 32 and arrivals are in progress to runway 6L (and the ATC procedures at any other airport where aircraft are permitted to hold in runway intersections) by amending FAA Order 7110.65, "Air Traffic Control," to explicitly prohibit holding aircraft in runway intersections at night or during low visibility when arrivals are in progress to any runway making up the intersection.

According to local and regional air traffic staff, the planning stages of the runway 32 extension project included discussions about changing the airport's design to preclude holding aircraft on runway 32 and 6L. Among the alternatives considered were an extension of runway 32 and associated taxiways to a point southeast of runway 6R so that aircraft awaiting departure clearance would be clear of runways 6L and 6R, or an upgrade of the existing blast pad southeast of runway 32 to allow an aircraft to be held between runways 6L and 6R. Because holding aircraft on active runways increases the risk of ground collisions, the Safety Board encourages the use of alternative procedures whenever possible. Therefore, the Safety Board believes that the FAA should assist ANC management in evaluating the airport's runway and taxiway layout to identify and, if necessary, construct holding areas for runway 32 departures that are clear of runways 6L and 6R. Because of the potential need for airport design modifications, the Safety Board also issued a safety recommendation to the airport director of Ted Stevens Anchorage International Airport, asking that airport management assist the FAA in addressing the issues discussed in this letter.

Therefore, the National Transportation Safety Board recommends that the Federal Aviation Administration:

Modify the air traffic control (ATC) procedures used at Ted Stevens Anchorage International Airport when departing aircraft are authorized to use the full length of runway 32 and arrivals are in progress to runway 6L (and the ATC procedures at any other airport where aircraft are permitted to hold in runway intersections) by amending FAA Order 7110.65, "Air Traffic Control," to explicitly prohibit holding aircraft in runway intersections at night or during low visibility when arrivals are in progress to any runway making up the intersection. (A-03-45)

Assist Ted Stevens Anchorage International Airport management in evaluating the airport's runway and taxiway layout to identify and, if necessary, construct holding areas for runway 32 departures that are clear of runways 6L and 6R. (A-03-46)

Chairman ENGLEMAN, Vice Chairman ROSENKER, and Members CARMODY, GOGLIA, and HEALING concurred with these recommendations.

Original Signed

By: Ellen G. Engleman
Chairman