Jog 2027

National Transportation Safety Board

Washington, D. C. 20594

Safety Recommendation

Date: March 16, 1988

In reply refer to: A-88-47 and -48

Honorable T. Allan McArtor
Administrator
Federal Aviation Administration
Washington D.C. 20591

The National Transportation Safety Board is investigating the facts and circumstances involving an air traffic control (ATC) operational error at O'Hare International Airport, Chicago, Illinois, on October 29, 1987, at 1547 central standard time. The operational error resulted in a near-collision between an airplane on takeoff and an airplane on an approach to land on a runway whose approach path crossed the departure runway. The reported weather at the time of the near-collision was: clear, visibility--15 miles; wind--060 degrees at 9 knots; and altimeter--30.02 in. hg. 1/

The near-collision involved United Airlines flight 973 (UAL973), a Boeing 737-300, and Air Wisconsin flight 954 (AWI954), a Fairchild F-27. UAL973 had been cleared to take off on runway 32L by the south local controller. The airplane was on a scheduled domestic passenger service flight from Chicago to Omaha, Nebraska. AWI954 had been cleared to land by the north local controller on runway 9L. The flight was a scheduled domestic passenger service flight from Milwaukee, Wisconsin, to Chicago. Both airplanes were operating on instrument flight rules flight plans. The near-collision occurred near the point where the centerline for runway 32L and the flightpath for runway 9L intersect. The runway threshold for runway 9L is approximately 1,800 feet from the centerline of runway 32L.

At the time of the near-collision, airplanes were departing on runways 32L, 9L, and 4L. Arrivals were being directed to land on runways 4R and 9R. The north local controller was responsible for airplanes on runways 9L and 4L. Another controller, designated as the south local controller, was responsible for airplanes operating on the south side of the airport, including runways 32L, 9R, and 4R. The tower supervisor had left the tower cab for a relief break; he had appointed a controller-in-charge (CIC) to act as the supervisor during his absence.

Safety Board investigators determined that the south local controller had cleared UAL973 into position to hold on runway 32L before takeoff. He also advised the flight to expect to be in position about 3 minutes, although he did not advise the flightcrew of the reason for the delay. The south local controller stated that the delay was to provide additional spacing behind another Air Wisconsin F-27 which had departed previously on the same runway. Shortly thereafter, AWI954 made initial contact with the south local controller for a landing clearance to runway 9R. When the airplane was

1/ Investigation of this incident has not been completed.

approximately 6 miles out on the final approach, the south local controller advised the flightcrew to continue for runway 9R and that he would see if runway 9L was available for landing. Coordination was effected with the north local controller, and the south local controller cleared AWI954 to "circle to land 9L," and to contact the north local controller. Even though runways 4R and 9R were the landing runways in use, the south local controller informed Safety Board investigators that he offered AWI954 runway 9L to land to expedite the movement of the flight to its gate area. He stated this procedure was used when flights could be accommodated without delaying other traffic. Safety Board investigators learned from the facility's manager for operations that, although it would not be considered routine, this change in runways would not be out of the ordinary as the facility tried to provide service to users.

After issuing the clearance to AWI954, the south local controller cleared UAL973 to takeoff on runway 32L and advised the flight to turn to a heading of 330 degrees. He did not issue traffic information to UAL973 as required by paragraph 3-103 of the the controller's handbook, 7110.65E. The captain of UAL973, who was flying the airplane, reported that the first officer advised him of the Air Wisconsin airplane on approach for runway 9L and that the airplane was going to cross the flightpath of UAL973. He stated that he was at rotation speed so he elected a higher-than-normal deck angle and that he asked for the landing gear to be retracted after becoming airborne to avoid a collision with the Air Wisconsin airplane. He then executed a 10-degree left turn while passing over the Air Wisconsin airplane. The first officer stated he observed the Air Wisconsin airplane slightly east of runway 32L as they overflew the aircraft. There were no injuries to the 63 passengers and 5 crewmembers aboard UAL973. The flightcrew of AWI954 was not aware of the incident. Both flights were completed without further incident.

Safety Board investigators interviewed the north and south local controllers, the local control coordinator, and the CIC. Both local controllers considered traffic conditions to have been light to moderate. The local control coordinator stated that she was standing by the north local control position and that she did not observe the occurrence. The CIC stated he was on the telephone coordinating flow control restrictions with the Chicago Air Route Traffic Control Center. He was facing toward the east at the time of the incident and was not aware of the occurrence until the south local controller informed him that "United complained."

Safety Board investigators also learned during the interview with the local control coordinator that she was not wearing a headset. She stated it was not possible to "plug in" at either local control position to monitor voice communications. It was her understanding that the extra phone jacks available in the tower cab were to be used only during "on-the-job" training. She stated that her responsibility was to act "as another set of eyes for both locals." When asked how she would be able to function without monitoring the radio frequency of the local control position, she stated she would stand by the local controller and "do what he asks you to." She also stated that the facility had evaluated the use of self-contained receivers for the local control coordinator position but had discontinued their use. She believed the use of the self-contained receivers had been discontinued after it was determined that the local control coordinator would occasionally become so involved in monitoring one local control frequency that the other local controller was unable to get the attention of the coordinator when needed.

The investigation of an operational error at O'Hare on February 25, 1986, was included as part of the Safety Board's special investigation of runway incursions at controlled airports in the United States in 1985 and 1986. 2/ The incident involved a United Air Lines flight 127 (UA127), a Douglas DC-8-71, which was on a takeoff roll from runway 32L, and Air Wisconsin flight 842 (AW842), a Fokker F-27, which was on final approach for landing on runway 9L. The captain of UA127 saw

2/ For more detailed information, read Special Investigation Report--"Runway Incursions at Controlled Airports in the United States" (NTSB/SIR-86/01).

AW842 and delayed rotation to a takeoff attitude until AW842 had crossed his departure path. The captain of UA127 said that had UA127 rotated and lifted off normally, the airplanes would have collided. The Safety Board's investigation determined that the actions which led to this near-collision were the air traffic controller's failure to properly scan his operating airspace before clearing the DC-8 for takeoff and the deficiency in the coordination procedures between controllers which was inadequate to prevent the incident.

Less than 3 months later, on May 17, 1986, the Safety Board investigated another operational error at O'Hare that resulted in a near-collision between USAir flight 373 (US373), a McDonnell Douglas DC-9, and American Airlines flight 695 (AA695), a Boeing 727. US373 was on takeoff on runway 4L, and AA695 was on takeoff on runway 32R. The near-collision occurred at the intersection of runways 4L and 32R; the intersection is 4,700 feet from the approach end of runway 4L and 4,900 feet from the approach end of 32R. The Safety Board's investigation of the incident determined that there was no redundancy beyond the tower supervisor to identify and correct human performance deficiencies. As a result of the investigation, the Safety Board issued three safety recommendations to the Federal Aviation Administration (FAA). 3/ Specifically, Safety Recommendation A-86-45 recommended that the FAA:

> Establish on a trial basis, for the north and for the south control operations in the Chicago O'Hare International Airport control tower, local control coordinator positions to monitor and supervise, directly, the local control positions; staff these positions whenever intersecting runways are in concurrent operations.

The objective of this recommendation was to assign two senior or supervisor controllers to separately monitor the performance of both the north and south local controllers and to provide a human redundancy as an "extra set of eyes and ears" to detect and correct any observed human performance deficiencies.

The FAA Administrator's response on May 30, 1986, indicated that the FAA was unwilling to consider this recommendation but deferred in favor of a 30-minute overlap procedure during position relief. Under this procedure, the controller being relieved remained on the job to help catch any performance deficiencies that the replacement controller might make while familiarizing himself or herself with the traffic situation.

A month later, the Safety Board became aware of two more operational errors at O'Hare that occurred on June 29 and July 2, 1986. Both incidents resulted in less than standard separation between two air carrier airplanes shortly after they had departed the airport, and both incidents were attributed to performance deficiencies of the local controllers. The dramatic increase in total ATC operational errors prompted the Safety Board to dispatch a team of operational and ATC specialists to investigate the two incidents.

Shortly after the most recent operational errors, the FAA, on July 9, 1986, implemented a staffing change in the O'Hare control tower that required the use of one local control coordinator during periods of moderate-to-heavy traffic (which partially fulfilled the intent of Safety Recommendation A-86-45). In a letter dated December 8, 1986, the FAA Administrator informed the Safety Board of this action and noted, in part, "I believe that the FAA action . . ., in concert with all other FAA actions to alleviate runway incursion incidents, satisfies the intent of this recommendation."

3/ For more detailed information, read Safety Recommendation Letter dated May 27, 1986 (A-86-44 through -46).

The Safety Board, while agreeing in part that the creation of one coordinator position was an improvement, stated, "It is the Board's opinion that, given the situation at Chicago O'Hare, a coordinator position should be established for both the north and south control positions." Based on the FAA response, the Safety Board classified Safety Recommendation A-86-45 as "Open--Unacceptable Action."

On February 6, 1987, as a result of its special investigation of operational errors at O'Hare, the Safety Board reiterated Safety Recommendation A-86-45 to the FAA to establish both a north and south local control coordinator position. 4/ The FAA's response on April 2, 1987, reflected no change in its position. The FAA Administrator stated, "the new position relief briefing overlap procedure and the cab coordinator position have been effective in assisting the local control positions and are preferable to the procedure specified in the safety recommendation." He went on to say, "I believe that the measures which have been taken at the Chicago O'Hare facility have been successful in meeting the intent of this recommendation." Because the Safety Board believed a stalemate had been reached on August 3, 1987, the Board classified the recommendation as "Closed--Unacceptable Action."

The Safety Board believes that there have been too many instances at O'Hare in which less than the minimum allowable distance between two or more airplanes has developed. The Safety Board is concerned that the circumstances of the February 25, 1986, incident are very similar to and closely parallel the circumstances of the most recent occurrence on October 29, 1987. Further, it is evident to the Safety Board that the FAA has not implemented sufficient procedural changes to prevent the recurrence of these types of incidents. Consequently, the Safety Board believes that the FAA should reconsider its position regarding the use of two local control coordinator positions for O'Hare.

The Safety Board acknowledges the fact that O'Hare is one of the busiest airports in the United States. Additionally, unique to this airport are the concurrent flight operations using several or more intersecting runways. The Safety Board believes that these two factors create a more demanding work environment which can increase the potential for human performance deficiencies. The Board also believes the use of a local control coordinator for both the north and south local control positions is needed to provide the redundancy to detect deficiencies and to take corrective action.

The Safety Board is concerned that the local coordinator position is not being used as envisioned in its recommendation to the FAA. O'Hare Tower Notice 7110.2, dated July 9, 1986, defines the position responsibilities of the local cab coordinator position, a portion of which are defined as, "Monitors interphone and radio circuits, as necessary, to maintain overall traffic picture." The Safety Board is concerned that the effectiveness of the coordinator is diminished when he or she is not wearing a headset and is unable to monitor the local control frequency.

Additionally, the inability to assist both local controllers during moderate-to-busy traffic periods indicates the need for additional assistance, especially in a dynamic environment of intersecting runway operations. Consequently, the Safety Board believes that the O'Hare ATC tower should incorporate a local coordinator position for each local controller position. The coordinator position should be able to actively monitor each respective local control interphone and radio communications frequency.

4/ For more detailed information, read Safety Recommendation Letter dated February 6, 1987 (A-87-3 through -7).

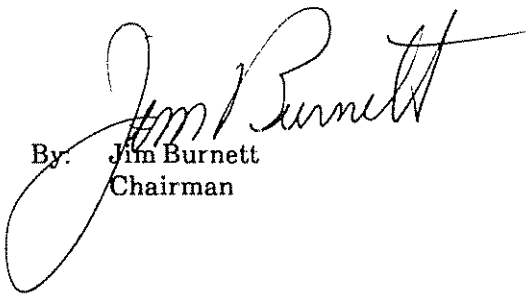
On November 6, 1987, Safety Board investigators were informed by the facility manager that a new procedure would be implemented as a result of the recent operational error. This procedure provides that when the primary arrival configuration is runways 4R/9R and airplanes are circled to runway 9L for landing, the controller handling runway 32L departures shall not issue a takeoff clearance until the arrival for runway 9L is observed over the approach end of runway 9L.

While the Safety Board commends the facility for initiating this corrective action, it does not believe this procedure will preclude this type of incident from occurring during other operational configurations. Because of the multiple configurations that are routinely used at O'Hare, arrivals and departures are segregated by frequency dependent upon the runways in use. Consequently, even though proper coordination may be accomplished, the possibility of a controller "forgetting" an airplane is greatly increased when the arrival and departure flights are not on the same frequency, respectively. The Safety Board believes this procedure should be expanded for use at any time that the flightpath of an arriving aircraft will intersect that of a departing aircraft.

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

> Establish, for the north and for the south control operations in the Chicago O'Hare International Airport control tower, local control coordinator positions to monitor and supervise, directly, the local control positions; staff these positions whenever intersecting runways are in concurrent operation. (Class II, Priority Action) (A-88-47)
>
> Expand the current Chicago O'Hare Tower Notice, ORD N7110.652, "Circling Procedures for Runways 9R/4R," dated November 6, 1987, to provide for application to any arriving aircraft whose flightpath will traverse the departure path of another aircraft. (Class II, Priority Action) (A-88-48)

BURNETT, Chairman, KOLSTAD, Vice Chairman, and LAUBER and NALL, Members, concurred in these recommendations.



By: Jim Burnett
Chairman