Air Traffic Organization
ATO Safety

Runway Safety

Western Pacific Region

Annual Airports Conference

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Federal Aviation Administration

“ RUNWAY SAFETY REMAINS A TOP PRIORITY”

- Bobby Sturgell, Acting FAA Administrator

March 25, 2008

FAA/INDUSTRY CALL TO ACTION PLAN FOR RUNWAY SAFETY

- Definitions: Surface Incident Categories
- Runway Incursion Definition – *Change*
- Call To Action – Current

RUNWAY INCURSION DEFINITION (~~current~~)

"Any occurrence at an airport involving an aircraft, vehicle, person or object on the ground that creates a collision hazard or results in loss of separation (inside one mile) with an aircraft taking off, intending to takeoff, landing, or intending to land"

RUNWAY INCURSION
EFFECTIVE 01 OCT 2007

Any Occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

RUNWAY INCURSION CATEGORIES

PILOT DEVIATIONS – A Violation of Federal Air Regulations by a Pilot

OPERATIONAL ERRORS/DEVIATIONS – The failure of an Air Traffic Controller to follow procedures resulting in a loss of separation or instructing an aircraft to take off or land on a closed runway

VEHICLE/PEDESTRIAN DEVIATIONS – Any unauthorized entry to an Airport Movement Area by a Vehicle or Pedestrian; or failure to follow procedures and/or Air Traffic instruction

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COLLISION RISK CATEGORIES

A B C D

RUNWAY INCURSION SEVERITY CATEGORY

- Category "A". A serious incident in which a collision was narrowly avoided.
- Category "B". An incident in which separation decreases and there is a significant potential for collision, which may result in a time critical corrective/evasive response to avoid a collision.
- Category "C". An incident characterized by ample time and/or distance to avoid a collision.
- Category "D". Incident that meets the definition of runway incursion such as incorrect presence of a single vehicle/person/aircraft on the protected area of a surface designated for the landing and take-off of aircraft but with no immediate safety consequences.

- The remaining non-conflict surface incidents that are not accounted for by the ICAO definition will continue to be reported and tracked.

CALL TO ACTION – RUNWAY SAFETY

Aviation leaders from airlines, airports, air traffic control and pilot unions, aerospace manufacturers and the FAA agreed to quickly implement a five point short-term plan to improve safety at U.S. airports.

1) **Within 60 days teams of FAA, airport operators, and air carriers will begin safety reviews at airports where wrong runway departures and runway incursions are the greatest concern. (20 airports identified).**
2) **Within 60 days, disseminate information and training across the entire aviation industry.**
3) **Within 60 days, accelerate the deployment of improved airport signage and markings at the top 75 airports, well ahead of the June 2008 mandated deadline.**

CALL TO ACTION – RUNWAY SAFETY *(Cont.)*

4) **Within 60 days, review cockpit procedures and air traffic control (ATC) clearance procedures. This may include changing cockpit procedures to minimize pilot activities and distractions while an aircraft is moving on the ground and to make ATC instructions more precise.**

CALL TO ACTION – RUNWAY SAFETY

continued…

5) Implement a voluntary self-reporting system for all air traffic organization safety personnel, such as air traffic controllers and technicians.

- Mid- and to long-term goals (6 months – 2 years) are being pursued to address maximizing situational awareness, minimizing pilot distractions, and eliminating runway incursions using procedures and technology.

Common Factors at Airports that experience Wrong Runway Events
CAST 4/3/2007

- Multiple runway thresholds located in close proximity to one another.
- A short distance between the airport terminal and the runway.
- A complex airport design.
- The use of a runway as a taxiway.
- A single runway that uses intersection departures.

Criteria Used to Evaluate Airports for the List

- **Runway Incursion Rate (last 24 months)**
- **Runway Incursion Severity (A, B, C, D)**
- **Threat Areas identified in the Wrong Runway Departures Study**

Factors Considered to identify Airports:

- ***Increasing*** **Runway Incursion Rate (previous 24 months)**
- ***Higher*** **Runway Incursion Severity (Previous 24 Months)**
- ***High number*** **of Threat Areas identified in the Wrong Runway Departures study:**
  - **Short Taxi Time; Airport Complexity; one taxiway to multiple runways; close proximity to multiple runway thresholds, runways used as taxiways; short runway <5000 feet; multiple options – excess of 4; single runway**

FY 2007 Surface Incident History

- Operational Errors [27 Total]
  - 10/27 – Loss of separation on Runway/ Not ensuring runway is clear
  - 10/27 – Authorized aircraft or vehicle/pedestrian on runway, then cleared an aircraft to land/depart same R/W
  - 7/27 – Not following SOP/No Coordination

- Pilot Deviations [151 Total]
  - 106/151 – Crossed Hold Lines or entered Runway without clearance – { 35 had acknowledged "Hold Short" }
  - 31/151 – Landed or Departed without clearance
  - 14/151 – Landed or Departed wrong Runway or Taxiway

FY 2007 Surface Incident History (continued)

- Vehicle/Pedestrian Deviations – [52 Total]
  - 48/52 - Vehicle/Pedestrian entered area "*intended for the takeoff and landing of aircraft* without clearance"
    - 21/48 - Authorized on Airport
    - 21/48 – NOT authorized on Airport
  - 4/52 – Maintenance Taxi by non-pilot

CONTRIBUTING FACTORS – Wrong Runway Departures

- *A short distance between the airport terminal and the runway*. A short distance between the terminal and the runway requires flightcrews to complete the same number of checklist items in a shorter timeframe and requires more heads-down time during taxi. Many of the event reports mentioned that the flightcrew members were rushing to complete their checklists or to expedite their departures.

- *A complex airport design*. A complex airport design can cause confusion among the flightcrew. The complexity of the airport layout includes factors such as high traffic volume, requiring the airplane to cross multiple runways to reach the departure runway, and complicated taxi instructions that involve the use of several taxiways.

CONTRIBUTING FACTORS – Wrong Runway Departures

- *The use of a runway as a taxiway*. In operations that required flightcrew members to use a runway to taxi to the assigned departure runway, pilots had a tendency to depart on the runway they were taxiing on instead of turning onto the correct runway when a takeoff clearance was issued.

- *A single runway that uses intersection departures*. Airports with a single runway layout were not immune to airplanes taking off on the wrong runway, especially when intersection departures were made. In these events, the flightcrew taxied onto the runway and turned in the wrong direction, taking off 180 degrees from the intended

Safety Risk Management

Risk Identification

Risk Mitigation

Infrastructure Enhancements

- **Taxiway and Runway Configuration.....*45% effective***

  Airports that have areas with multiple runway thresholds in close proximity could be redesigned to move the thresholds and eliminate the threat of a wrong runway departure. In addition, future airports may consider designs without these areas.

- **Enhanced Surface Marking and Lighting....*29% effective***

  In areas that have been identified with a higher threat of having a wrong runway event, runway status lights (RSLs), such as those in Cleveland, should be installed, as well as the Final Approach Runway Occupancy Signal (FAROS) system.

Runway Safety Action Team (RSAT Evaluations)

.....30% effective

Runway Safety Action Teams are established at both the regional and local level to develop a Runway Safety Action Plan for a specific airport and Facility. The Runway Safety Action Team's primary purpose is to address existing runway safety problems and issues.

An additional purpose is to identify and address potential runway safety issues. Currently, an additional focus of RSATs is assessing the threat of wrong runway events.

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