

# The FAA Airport Safety Newsletter

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**The FAA ASNL**  
*is the Newsletter*  
*of the*  
**Airport Safety and Operations**  
**Division**

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### Thought for this Issue

The Airports organization has gone the distance in raising FAA's and the Airports' levels of awareness regarding VPDs and our efforts to reduce the numbers. The categories of severity that have been developed will help us gauge better how effective our efforts have been.

Ben Castellano, Manager  
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## THE RUNWAY INCURSION SCENE

### Progress Report.

Refinements in identifying and evaluating VPDs that are classified as runway incursions should help in understanding better the runway incursion situation. The first positive

factor is that incursions are now entered into a data system. Over time, this will provide an historical perspective. Second, a new wrinkle, that of categorizing them, may be the most effective tool we will have for addressing underlying causes. And third, the FAA Forms 8020-24/25 forms and the proper follow-up that they imply generate attention and action on at least two fronts - FAA's and the airport involved.

### The Data System.

The collection of runway incursion data depends on standardized and consistent reporting of the facts. This means *all* the facts. At least two Airport Certification Safety Inspectors (ACSI) have reported events involving vehicles, pedestrians, or pilots, which were not entered into the system. Such failures to report damage the system's integrity. Airport management at general aviation airports and Air Traffic Control personnel at towered airports must comply with the system in recording events that, when examined, will assist in improving airport safety and prevent mishaps.

### Data Collection: FAA Forms 8020-24/25.

Form **8020-24** is the starting point for a surface incident. It contains only the **facts** and is the initiation of an investigation. It is the jumping off point for ACSIs and other Regional and ADO personnel. Form **8020-25**

is the real thing. It requires insight, some persistence, and airport operations knowledge. It requires, essentially, detective work and analysis, putting the facts together, and coming up with the big picture. The ultimate result is a prescriptive to prevent a recurrence.

### **Categories in the Data Collection System.**

For the first year during which data was collected systematically, analysts began to see different levels of risk associated with surface events. In an event where a mishap was avoided only by a few feet or by an operator having taken a decisive action, the risk of an event was obviously high. In an event where behavior of an operator was clearly hazardous but there was no imminent risk of a mishap, the likelihood of an event was obviously low.

As a result of these observations, analysts determined that it could be advantageous to assess risk levels to gain a better understanding of what was occurring and what remedies might be indicated; thus, the development of the Categories.

### **A Review of the Categories.**

A set of categories has been established to accommodate the evaluation of runway incursion data. **Category A** represents the most critical severity level. In this category are runway incursions that require extreme action on the part of an operator (e.g., pilot or vehicle driver) to avoid a collision, with the result that the collision was narrowly avoided. **Category B** represents the next level of severity. A collision

may be imminent in this category, but actions were taken that avoided a mishap with more of a margin. In **Category C**, the margin is even wider, and in **Category D**, while the risk of collision is present, time to avert the mishap is greatest in this category.

### **New Steps in Evaluating the Data.**

The development of the categories of severity marks the use of a new measurement tool. It is the logical next step in determining the level of risk an airport is experiencing. While the FAA Airports Office's concerns are focused on Vehicle/ Pedestrian Deviations (VPDs), obviously other FAA lines of business are also examining Operational Error (OE) and Pilot Deviation (PD) counts. All these types of events are crucial to assessing the risks to the safety of air transportation.

### **Significance of the Categories.**

**Category A** and **Category B** runway incursions pose the highest risk. Fortunately, these are not common occurrences. When they do occur, an intensive examination ensues. When these Categories involve VPDs, both the Airport representative and the 14 CFR part 139 certificate holder or airport operator have serious responsibilities to address. The ensuing investigation must verify:

- the accuracy of the facts, and
- the chronology of the events that led to the incursion.

They also should take the following actions:

- conduct interviews where possible and practical to gain

insights into why the event occurred,

- look at the site where the event occurred, and
- listen to ATC tapes, if appropriate.

The investigative process should include questions regarding:

- the conduct of driver training, especially the course content of a driver training program,
- applicability of the driver training (who takes it, who gives it, and what recurrency is required),
- communications, especially the use of language specific to aviation (pilot/controller glossary) and a driver's working knowledge of ATC conventions and usages,
- procedures for difficult situations, e.g., loss of radio, loss of situational awareness, and
- recommended remedial action or penalty system.

Categories A and B events that involve a VPD mandate serious concern on the part of the airport operator. An on-site investigation of these events will be conducted, so that cause(s) can be determined and appropriate steps taken to prevent a recurrence.

Categories C and D. While these Categories pose less of a danger of a mishap, they are not to be minimized in terms of their importance. *Any* runway incursion has the potential to involve loss of life and property. As analysts continue to pore over the data,

significance of the Category C and D runway incursions will probably emerge. Events in these two Categories occur in greater numbers than in Categories A and B.

However, these events still involve, in the case of VPDs, entry onto a pavement without a clearance or an action in the controlled environment not in accordance with an ATC directive. It is only because the collision hazard was reduced that the event is in either Category C or D.

### **Implications of Category C and Category D events.**

Complacency is the biggest enemy in any environment where risk is involved. The certificate holder or airport operator who maintains that as long as s/he has no Category A or Category B runway incursions, then his/her airport is "safe," is blind to what accident investigators find again and again. It is called the "causal chain." One weak link in the chain probably will not result in an accident. So, one runway incursion in the C or D Category may be a fluke. The second one is beginning to tell the airport operator something about airport safety. Amass two or more of these, and it is only a matter of time before the event will occur with no safety margin and will be a major mishap. Why? Because the actions that create a runway incursion are the same; it is only other conditions, namely, proximity and the resulting avoidance action, that define the Category.

### **Example:**

The driver of a vehicle on the airport's movement area experiences

a loss of situational awareness and does not understand clearly what to do. So, s/he crosses a runway inadvertently, thinking that the taxiway s/he is *supposed* to be on is "over there." An aircraft on close-in final leg is warned by ATC that a vehicle is crossing the runway and to go around. ATC reports the surface incident with a loss of separation. The "runway incursion" is not serious. The "loss of separation" was not critical. Appropriate action saved the day.

The next time this event takes place, the location is critical. It occurs with the aircraft just touching down. The driver of the vehicle is crossing near a taxiway/runway intersection located near the touchdown point. This now is a full-blown mishap, involving possible loss of life, property loss, and heavy penalties. If it is found that the airport operator did not take appropriate action following the first such event, a possible part 139 violation exists as well, if it is a certificated airport. At an airport governed by grant assurances, other actions may be in order. And then the victims' lawyers will take it from there.

### **Categories and Conditions.**

It is clear from this example that other conditions are very important in determining the severity of a runway incursion, "loss of separation" being pivotal. But loss of separation is not the only issue for the airport operator. Remedying the situation in which the vehicle's operator found him- or herself is what matters or should matter to the airport operator.

### **Summing Up.**

Runway incursions have been on the radar screen for some time now, and the collection of data indicates that part 139 certificate holders have become aware of the steps that must be taken to achieve compliance with part 139.329. General aviation airport operators have also established operating regulations for vehicles and pedestrians at their airports. Many airports have sent their driver training courses and videos to FAA Headquarters for evaluation and comment. Rightfully so, many are proud of what they developed to train operators on their airports. The most telling gesture is that they are willing to share what they have learned. As one of the airport managers commented, "You have to learn from others' mistakes; that way, you won't make the same ones; at least if we tell people what we have found out about driver training and what is effective and what is not, we can save someone else the trouble of finding out the hard way."

### **A Note for General Aviation Non-towered Airport Operators.**

Preventing surface incidents and reporting them if and when they do occur is a singular responsibility. It is especially important for airport operators to exercise this responsibility prior to or at the same time a pilot or some other party on the airport makes a report. In addition, general aviation airport operators are in a unique position where education is key to preventing surface incidents. General aviation airports are where most pilots get their first real experience with

aviation. Getting started in aviation is important, and learning the systems that aviation uses for information, direction, and commands can be started on the general aviation airport.

### **Information for Operators on Lighting, Marking, and Signs for General Aviation Airports.**

Assistance from FAA is available. Guidance for economy lighting and signs is available in the FAA Advisory Circulars (ACs). ACs in the 150 series are applicable to an airport's physical plant. E.g., AC150/5340-18B and AC150/5345-44F identify sign systems and sign standards for both lighted and unlighted signs for airports. AC150/5345-46B contains the *Specification for Runway and Taxiway Light Fixtures*.

Many General Aviation airports can enhance runway safety by installing signs that meet the design standards of the ACs. These signs may be made of materials available to the sponsor. E.g., materials available for making highway signs work equally well at the airport. Where there are night operations, the airport operator should specify retroreflective paint or materials. The AC on *Marking*, 150/5340-1H can also be used in the same way. A well-marked, -signed, and -lighted runway/taxiway configuration at the airport can be a positive for airport safety. Since general aviation airports have become important training facilities for today's supply of pilots, it makes sense to expose students to the systems they will encounter in their careers.

### **A Note for Operators of Flight Training Schools.**

FAA has taken the opportunity at safety seminars, conferences, and Association gatherings to determine some of the causes of surface incidents. Not surprisingly, many pilots admit that they have not had any real instruction in marking, lighting, and sign systems on airports.

Part of the culture of flying has been a take-off to touchdown myth that continues to dominate the aviation community. Flight Schools must be in the forefront of educating pilots about their responsibilities that begin at the gate or at the hangar or tiedown and end at the destination gate, hangar, or tiedown. Taxiing around the airport may not be viewed as the most exciting part of the trip, but it has become infinitely challenging and is every bit as demanding as navigating the skies. Teaching the marking, lighting and sign systems and requiring that students demonstrate a knowledge of them will help decrease the potential for runway surface incidents.

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## **AIRPORTS AND TERRORISM**

The past weeks have made those of us in the aviation industry aware of our vulnerabilities. Now is the time to do something positive for airports.

Non-towered certificated and general aviation airports can take steps to increase protection by doing a few

very simple things, involving their communities and citizens:

1. Invite law enforcement personnel to the airport and brief them on some basic aviation terminology and procedures. They, in turn, can probably offer some advice of their own to help the airport.

2. Invite firefighters to the airport and exchange information on fire protection for aviation information. Everyone should know how to use a fire extinguisher. Everyone should know the ABCs of fire, *i.e.* the specific techniques for the classes of fires. And everyone needs to be aware of handling petroleum products safely, what to do for spills, what to do to keep fuel farms safe and what to do when unsafe conditions are observed.

3. Organize tenant pilots. When people are familiar with who should be on the airport, who the regular players are, the tension level is reduced, and people will watch out for one another.

4. Review access points at the airport; keep gates closed; post appropriate signs. Where key cards are used, review the list and instruct cardholders on the importance of maintaining control of their cards.

No one wants to lose an airport or have its operations curtailed. The events of September have created anxieties over safety as well as access to the skies. To have a system without a proliferation of restrictions will require that pilots be more caring and more protective of their airports. It will require that

airport operators enlist the help of those who come to the airport only to fly or "hang out" for a spell of hangar flying.

Law enforcement and firefighting personnel perform work that gives them insights into safe practices and enhanced protection. Besides, these are the people who are called when a mishap occurs. The airport operator who conveys important information to these people is ahead of the game when an event occurs on his or her airport. Take, for example, the use of the words "approach end" and "departure end" of the runway. We in aviation use these terms without a second thought. But to a non-aviation oriented person, they may have no meaning at all. Our use of magnetic direction to designate runways has become second nature to us, but to someone not conversant in aviation terminology, what does "the approach end of Runway 14" mean? If a mishap occurs on the approach end of Runway 14, the meaning of that terminology becomes critical in reducing the time it takes for a rescue team to arrive at the site. In addition, access roads, perimeter roads, and the gates through which entry is accomplished are also critical pieces of information. When time is of the essence, this kind of information can save a life.

These examples illustrate how an airport operator can help law enforcement and firefighting personnel become more of a presence on the airport. They, in turn, can point out some of the

vulnerabilities of an airport, which should be addressed.

While we recover from what we thought couldn't happen here in the USA, take a moment to see what can be done for the future of your airport, its protection, its viability as a

part of the system. Once the community is assured of the measures being taken to enhance safety on the airfield, aviation will have a chance at restoring and increasing public confidence in using the air transportation system.

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# Quarterly Vignettes

Vignette 1. Two dump trucks crossed R/W 17 hold lines without authorization. Cessna 208 on 2.5 mile final sent around to avoid loss of separation. 270806 AGL ROC

Vignette 2. Construction vehicle entered R/W 16L without authorization conflicting with Beech 35; closest proximity 300' vertical, 0 horizontal. 271310 ASW ROC

Vignette 3. Emergency response personnel walked into active R/W 4/22 without authorization, conflicting with a Cessna 172, cleared for departure. Clearance cancelled. 230948 ASW ROC.

Vignette 4. Mechanic, taxiing a Learjet, failed to comply with ATCT instruction to hold short of R/W 21. C-152 had to execute a go-around. The local FSDO is investigating. 131425 AEA ROC

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**In closing out the year 2001, The FAA Airports Office expresses the wish for a more peaceful, happier new year in 2002.**