

# **AUDIT OF CONTROLS OVER THE REPORTING OF OPERATIONAL ERRORS**

*Federal Aviation Administration*

*Report Number AV-2004-085*

*September 20, 2004*



U.S. Department of  
Transportation

Office of the Secretary  
of Transportation  
Office of Inspector General

# Memorandum

Subject: ACTION: Report on Controls Over the  
Reporting of Operational Errors  
Federal Aviation Administration  
AV-2004-085

Date: September 20, 2004

From: Alexis M. Stefani   
Principal Assistant Inspector General  
for Audit and Evaluation

Reply to  
Attn of: JA-10

To: Federal Aviation Administrator

This report presents the results of our review of the Federal Aviation Administration's (FAA) process for reporting air traffic control operational errors. The objective of our review was to determine what assurance FAA has that all operational errors are reported accurately. (See Exhibit A for details regarding our scope, methodology, and prior audit coverage.) We found that because of vulnerabilities in FAA's reporting process at certain air traffic control facilities, operational errors have not been accurately reported. Specifically, at the facilities that handle the most air traffic, FAA relies on supervisors and controllers to self-report when errors have occurred and does not have a system in place to verify that this reporting process is reliable.

We determined that at facilities where operational errors are self reported, 22 percent of the errors that occurred in fiscal year (FY) 2003 were initially reported by outside parties and were not identified by facility controllers or managers. Also, during a recent 2-year period, the Office of Inspector General and FAA's hotline center received as many as 120 hotline complaints concerning aircraft that come too close together, or potential operational errors. Further, during a current investigation at one air traffic facility, we identified five errors that had not been reported by facility personnel or managers. Prior to our review the facility had only reported two errors. While the actual extent of underreporting is unknown, in our view, these findings show FAA needs to take more aggressive steps to ensure that operational errors are more accurately reported.

Operational errors can pose very serious safety risks and are critical indicators of the safety of the Nation's air traffic control system. An operational error occurs when an air traffic controller allows two aircraft to come too close together. Reducing operational errors is a key performance goal for FAA and, to its credit, the Agency has made some progress during the first 8 months of FY 2004 in reducing these incidents. However, FAA must continue its efforts because on average, three operational errors occur each day and one severe error (those rated as high risk) occurs every 9 days.<sup>1</sup>

In FY 2003, FAA established a goal to reduce the number of the two most serious categories of operational errors by 15 percent, or no more than 563 serious errors a year by FY 2008. In conjunction with the extension of their collective bargaining agreement, on December 18, 2003, the National Air Traffic Controllers Association (NATCA) and FAA agreed to tie a portion of controllers' salary increases to national goals for improving safety and capacity. Each year, controllers will receive a 0.2 percent pay raise if serious operational errors are reduced by at least 3 percent from the corresponding period of the previous year. The Administrator has also extended this pay incentive to air traffic control facility managers and supervisors.

We consider the development of this agreement an important step toward linking air traffic controllers' and managers' pay to performance. However, the agreement has renewed our concerns that FAA does not have a system that ensures accurate operational error reporting at all air traffic control facilities.

## **BACKGROUND**

FAA provides air traffic control services at three types of facilities in which operational errors can occur: en route, terminal radar approach control (TRACON), and tower facilities. FAA's 20 en route facilities within the continental United States provide air traffic control services for flights that are generally above 10,000 feet and outside the immediate area of airports. Controllers in TRACON facilities provide air traffic services for aircraft that are within 5 to 50 miles of an airport. Once aircraft are within 5 miles of an airport, controllers in tower facilities assume control of the aircraft and guide pilots through takeoffs, landings, and ground movements. In total, FAA has 504 TRACON and tower facilities.<sup>2</sup>

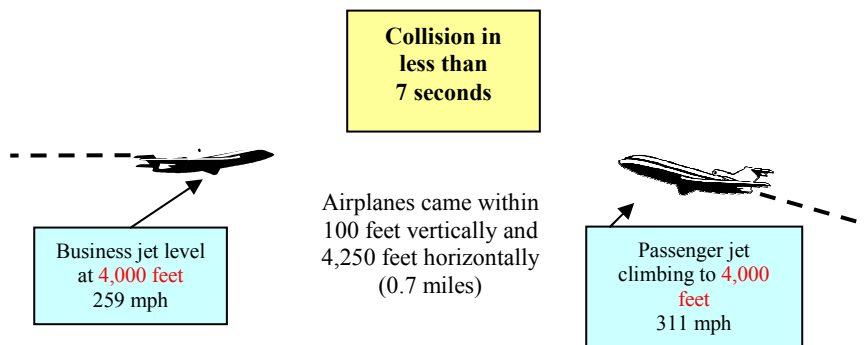
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<sup>1</sup> FAA has four categories of operational errors: category A, errors rated as high severity; category B, errors rated as moderate-uncontrolled, i.e., the controller was unaware the error was about to occur; category C, errors rated as moderate-controlled, i.e., the controller was aware the error was about to occur but could not take action in time to prevent it; and category D, errors rated as low severity.

<sup>2</sup> Of the 504 facilities, 330 are FAA and contract tower facilities, 155 are combined TRACON/tower facilities, and 19 are stand-alone TRACON facilities.

Operational errors occur when a controller’s actions cause two aircraft to lose the required minimum separation, or come too close together. For example, a controller may inadvertently instruct a pilot to descend or turn into the path of another aircraft. An operational error that occurred at a TRACON when a controller directed a passenger jet and a business jet into converging courses is depicted in Figure 1. The aircraft were about 7 seconds from a midair collision when the pilots’ evasive actions averted an accident. In assessing the severity of the error, FAA rated this incident at the high end of moderate, scoring 87 out of a possible 100 points.

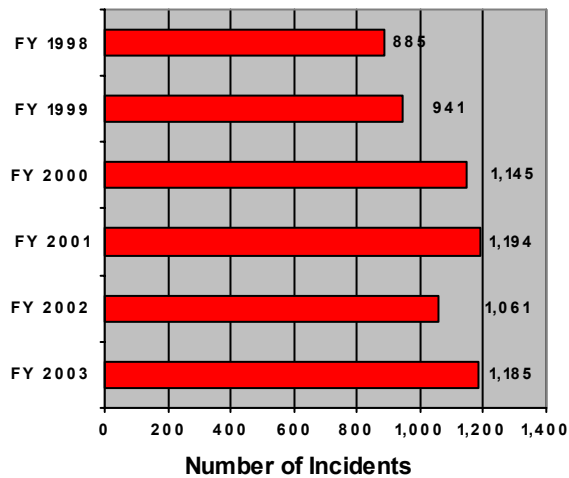
**Figure 1. Operational Error at a TRACON**



As shown in Figure 2, from FY 1998 through FY 2003, operational errors increased 34 percent, from 885 to 1,185. In FY 2003, an average of three operational errors occurred each day and one high-severity error (those where an accident was barely avoided) occurred every 7 days.

This year, FAA has made some progress in reducing operational errors. During the first 8 months of FY 2004, operational errors decreased by 3 percent to 689 from 710 during the same period in FY 2003. More significantly, high-

**Figure 2. Operational Errors FY 1998 to FY 2003**



severity errors decreased 19 percent, from 32 to 26. However, numbers of operational errors are still too high, as three operational errors are still occurring each day and one high-severity error every 9 days.

## RESULTS IN BRIEF

Operational errors are critical indicators of the safety of the National Airspace System. Accordingly, FAA has set an important performance measure to reduce operational errors and enhance the safety of the air traffic system. To make certain this goal is met, FAA needs greater assurance that operational errors are accurately reported. However, because FAA does not have automated systems or controls in place to verify accurate reporting at all air traffic control facilities, operational errors have gone unreported. FAA has established systems to alert controllers and managers when aircraft get too close together in only 20 of its 524 air traffic control facilities.

At en route facilities (where aircraft fly at higher altitudes and outside the immediate area of airports), an automated system sounds an alert if a controller allows two aircraft to violate FAA separation standards. Managers and controllers can then review radar and voice data for these incidents to verify if an error has occurred. Conversely, at TRACON and tower facilities, where there are more aircraft operating in a smaller amount of airspace, there is no automated system to identify when an operational error occurs. At these facilities, air traffic controllers are required to notify their supervisor/manager when an operational error occurs. If supervisors/managers observe the incident, they are required to report it.

En route facilities control only about one-fourth of air traffic operations, yet in FY 2003, 684 operational errors were reported at the 20 en route facilities compared to 501 errors at all of FAA's 504 TRACON and tower facilities combined.<sup>3</sup> Given the fact that en route facilities control far less traffic than TRACON and tower facilities, it does not seem logical that en route facilities would have almost 200, or 40 percent, more operational errors.

Further, our review of FAA data showed that 108 of the 501 operational errors (22 percent) reported by TRACON and tower facilities in FY 2003 were initially identified as a result of reports from pilots, neighboring air traffic control facilities, or other outside sources (e.g., hotline complaints, airport personnel, or airline personnel). In contrast, only 24 of the 684 operational errors (4 percent) reported by en route facilities were identified by outside sources.

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<sup>3</sup> The 501 operational errors include 7 incidents at the Anchorage en route facility, which does not have an automated system to identify operational errors.

These statistics show that FAA cannot rely on a system that is based on facility personnel self-reporting operational errors. FAA needs a procedure that will provide it greater assurance that substantially all operational errors are being reported. TRACON and tower facilities have playback systems that air traffic personnel can use to review radar and voice data and recreate operations that occurred in the past, but FAA does not use the data in this manner. The recommendations in this report are designed to address this issue by requiring TRACONs and towers to use these systems to improve the accuracy of operational error reporting.

**Complaints of Unreported Incidents.** We reviewed Hotline complaint data submitted to the Office of Inspector General and FAA hotline centers<sup>4</sup> over a recent 2-year period. As shown in Table 1, we found that 75 percent of the complaints were related to incidents at TRACON and tower facilities, where there is no automated system to identify when operational errors occur.

**Table 1. Incidents Reported to Hotline Complaint Centers**

Complaints by Facility Type	Number of Complaints Over a 2-year Period*		
	Year 1	Year 2	Total
TRACON and Towers	55	65	120
En route centers	12	10	22
Unknown	12	6	18
<b>Total</b>	<b>79</b>	<b>81</b>	<b>160</b>

\* Year 1: April 24, 2002 through April 30, 2003.  
Year 2: May 1, 2003 through May 3, 2004.

Although FAA has only confirmed that 12 of these complaints were actual operational errors, the number of complaints and their disposition raises questions about whether all errors have been reported. FAA could not conduct a full investigation of a significant number of these complaints because it did not have sufficient information, or radar and voice data were not available to investigate the incident.

We reported in December 2000<sup>5</sup> that adequate documentation was not always available to confirm whether operational errors occurred because FAA did not

<sup>4</sup> FAA has two hotline centers where complaints can be made. Its Safety Hotline primarily receives complaints from the public. FAA's Administrator's Hotline receives complaints from FAA employees. We requested complaints from these hotline centers that specifically referenced loss of separation or operational errors.

<sup>5</sup> OIG Report Number AV-2001-011, "Actions To Reduce Operational Errors and Deviations Have Not Been Effective," December 15, 2000.

retain air traffic radar and voice recording tapes past 15 days. We recommended that FAA extend the retention period to 45 days. FAA indicated that retaining all air traffic radar and voice recording tapes for 45 days would create a storage problem. Since that time, FAA has replaced its voice recording system with digital technology, which can be stored much more efficiently. To FAA's credit, on February 19, 2004, it amended its guidance and required facilities to extend their retention period for radar and voice data to 45 days. This should help FAA improve its ability to investigate and identify operational errors that are reported through hotline complaints or third parties.

Improving the identification of operational errors is important because some of the incidents reported to the hotline centers involve allegations that operational errors were intentionally covered up. These complaints are the subject of ongoing reviews. Further, on May 14, 2004, the U.S. Office of Special Counsel notified the Secretary of Transportation of the need to investigate allegations of unreported operational errors at a TRACON facility. The Secretary referred this complaint to our office for investigation. According to the complaint, operational errors involving aircraft flying dangerously close to one another occurred, on average, at least once per month at this facility, and many of these incidents were not reported. Our preliminary investigation determined that:

- Prior to our investigation, the facility had reported only two operational errors during the 6-month period from January 1 through June 24, 2004.
- During our investigation, we identified five operational errors that had not been previously reported by reviewing radar and voice data of operations covering a 2-month period (May and June 2004).

We are completing our investigation at the TRACON facility to determine why the errors were not reported. We will be issuing a separate report on the results of the investigation in the near future.

FAA air traffic safety officials assisted us in our investigation and consider the non-reporting of operational errors at this facility very serious. In addition, FAA's safety evaluations office has placed the facility under a "no-notice review" status for a 2-year period. This means that evaluations staff can show up at the facility with no advance notice to evaluate whether the facility is accurately reporting operational errors.

The Special Counsel's complaint and the number of complaints of unreported incidents received by the Office of Inspector General and FAA hotline centers highlight the need for FAA to take a more proactive approach in ensuring

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operational error reporting systems at all facilities have the integrity to limit the occurrence of these allegations.

**Potential Alternative to Self-Reporting Systems.** FAA officials stated that due to the complexity of operations at TRACON and tower facilities, it is not feasible to add alert systems to automatically identify when operational errors have occurred. However, these facilities do have other systems that could be used to identify unreported operational errors. Specifically, all TRACON and large tower facilities have playback systems that air traffic personnel can use to review radar and voice data and recreate past operations. TRACON and tower air traffic personnel could periodically review past operations using this radar and voice data to assess whether operational errors are being accurately reported. For example, facility personnel could develop sampling methods that would target periods when operational errors are most likely to occur and review radar and voice data to determine if unreported operational errors occurred. This review process would provide FAA with an internal control that would act as a deterrent against employees who may intentionally cover up operational errors.

However, FAA currently has guidance in place that limits its use of radar playback tools to identify operational errors. FAA's guidance, "Air Traffic Quality Assurance" (FAA Order 7210.56C, dated August 15, 2002) limits FAA from "arbitrarily" using radar playback tools as a primary source (or triggering event) for reporting an operational error or initiating an investigation. Playback tools can be used only after a suspected incident has been reported. Given the importance of accurately reporting operational errors to measure the safety of the air traffic system, FAA should rescind the provision that prevents FAA from using playback tools to periodically review voice and radar data to identify operational errors that were not previously reported.

To obtain additional assurance that operational errors are accurately reported at TRACON and tower facilities, FAA should:

- Rescind provisions in FAA's Air Traffic Quality Assurance Order 7210.56C that prevent FAA from using playback tools to identify operational errors.
- Establish internal audit procedures that require facility personnel to periodically review voice and radar data to assess whether operational errors are being fully reported.
- Require the air traffic evaluation staff to review and test audit records at TRACON and tower facilities to ensure these facilities are conducting periodic audits of radar and voice data.

## **Management Comments and OIG Response**



On September 15, 2004, FAA provided written comments (attached as an Appendix to this report) to our August 20, 2004 draft report. FAA concurred with our recommendations, but its proposed actions were not clear or specific on how or when the Agency would make the necessary changes to address the intent of our recommendations.

For example, FAA stated that current orders allow use of playback tools to identify operational errors. However, FAA's current guidance (FAA Order 7210.56C) places limits on its use of playback tools and prevents FAA from using these tools to identify operational errors without a triggering event or indication that an error has already occurred. In our opinion, FAA needs to rescind the order or otherwise modify it so that it is clear playback tools can be used to conduct random audits to ensure operational errors are accurately reported.

Further, FAA agreed to implement management controls to enhance existing audit functions within TRACON and tower facilities. However, there is currently no requirement that TRACON and tower facilities conduct audits of radar and voice data to identify unreported operational errors. Therefore, FAA needs to provide information on how it can enhance procedures that do not currently exist.

FAA must clarify how it plans to implement our recommendations. Also, specific timeframes are needed to clarify when planned actions will be completed.

## **FINDING AND RECOMMENDATIONS**

### **En Route Facilities Have a System To Identify When Potential Operational Errors Occur**

FAA has an automated system that identifies when operational errors occur at its 20 en route facilities located in the continental United States. In addition, these facilities have quality assurance review processes that verify that operational errors are accurately reported. Specifically, when two aircraft come too close together and lose required separation in airspace monitored by en route facilities:

- An automated system (the Operational Error Detection Program) will sound an audible alert.
- Each alert is automatically recorded in a log.
- Facility personnel review each alert to determine why the loss of separation occurred. This review includes examining voice and radar data, which allows the personnel to recreate the events that led to the incident; validate that a loss of separation occurred; and verify whether the controller's

actions caused the incident. If it is determined that an operational error did occur, the facility conducts an in-depth investigation of the incident.

- Quality assurance personnel conduct weekly audits of the alerts documented in the log to validate the accuracy of alerts that were determined to be false or not an operational error.
- Quality assurance personnel submit quarterly reports to the facility manager summarizing the results of the weekly audits.

In addition, FAA Headquarters evaluation staff ensure that the facilities are conducting the weekly audits as required and also perform their own audits of the alert logs during their facility evaluations.

### **FAA's Reliance on Self-Reporting at TRACON and Tower Facilities Does Not Ensure That Operational Errors Are Accurately Reported**

FAA needs additional controls to ensure the integrity of operational error reporting at TRACON and tower facilities because there is no automated system to identify when operational errors occur. At these facilities, FAA relies on facility supervisors/managers and controllers to self-report operational errors. Once an employee identifies that an operational error may have occurred, facility personnel are required to fully investigate the incident. A key part of this investigation is to review voice and radar data so that facility personnel can recreate the events that led to the incident, validate that a loss of separation occurred, and verify whether the controller's actions caused the incident.

Although facility supervisors/managers and controllers are required to report when operational errors occur, our review of FY 2003 data showed that 108 of the 501 operational errors, or 22 percent, occurring at TRACON and tower facilities were identified as a result of reports from pilots, neighboring air traffic control facilities, or other outside sources (e.g., hotline complaints, airport personnel, or airline personnel). For example, on October 2, 2002, a high-severity operational error involving two commercial aircraft occurred at a TRACON that was not reported until the facility received a call from the pilot, 14 days after the incident occurred. In contrast, only 24 of the 684 operational errors, or 4 percent, reported by en route facilities were identified by outside sources. These statistics indicate that FAA can not rely on a system that is based on facility personnel self-reporting operational errors.

Over a 2-year period, the Office of Inspector General and FAA's two safety hotline centers received 160 complaints regarding loss of separation between aircraft or unreported operational errors. Our review determined that 75 percent of

the complaints involved incidents at TRACON and tower facilities. More recently, in May 2004, the Secretary of Transportation requested that we investigate allegations of unreported serious operational errors at a TRACON facility that were brought to the attention of the U.S. Office of Special Counsel. Our investigation of this complaint identified operational errors that had not been reported. Specifically:

- Prior to our review, the facility had reported only two operational errors for the 6-month period from January 1 through June 24, 2004.
- During our investigation, we identified *five* operational errors that had not been previously reported. Investigators identified the errors, in part, by reviewing radar and voice data of operations covering a 2-month period (May and June 2004). In addition, by evaluating documentation related to incidents that occurred in March 2002 and February 2004, we identified two more errors that facility personnel had previously determined were not operational errors.
- Since our investigation was initiated, the facility has reported 16 operational errors in just over 1 month (from June 25 through August 1, 2004).

The Special Counsel's request and the number of complaints received by the Office of Inspector General and FAA hotline centers raise questions as to whether all operational errors are reported by facility supervisors/managers and controllers. These complaints also highlight the need for FAA to take a more proactive approach in ensuring operational error reporting systems at all facilities have the integrity to limit the occurrence of allegations that operational errors are being covered up.

FAA actively encourages reporting and has taken adverse action against personnel who intentionally covered up operational errors. FAA air traffic officials stated that reports from pilots and other third parties act as a control to ensure operational errors are reported, especially serious incidents. However, operational errors can still go unreported. In May 2001, FAA Headquarters personnel performed a special review of a TRACON/tower facility to determine the reasons for a significant increase in operational errors at the facility. During this review, evaluators identified *four* operational errors that had not been previously reported by controllers, pilots, or other parties. The evaluators used the facility's conflict alert log as a basis for selecting radar and voice data for review. The log also permitted the evaluators to target and select for review high-risk time periods when errors were more likely to occur.

The facility's conflict alert system provides controllers with an audible warning, or alarm, when two aircraft are coming so close together that an operational error could occur. Each potential incident is documented in the facility's conflict alert

log but does not always represent an actual operational error. Unlike the automated system used to identify operational errors at en route facilities, these “conflict alerts” occur prior to a loss of separation between aircraft; therefore, controllers have an opportunity to take action before an operational error occurs. However, if controllers are not able to take action in a timely manner, an operational error may still occur.

Since FAA evaluators do not normally review radar and voice data to identify operational errors during facility reviews at TRACONs and towers, FAA has not reported findings of this nature since 2001. However, the review illustrated that this process was effective in identifying unreported operational errors.

### **FAA Has Systems That Could Aid in Improving the Accuracy of Reporting Operational Errors at TRACON and Tower Facilities**

According to FAA air traffic officials, it is not feasible to develop an automated system to identify operational errors in TRACON and tower facilities. FAA stated that aircraft that fly within TRACON and tower airspace are required to be separated at varying distances (e.g. separation standards can vary from 3 to 5 miles horizontally, depending on aircraft type and runway layout) and in a more condensed area (i.e., within a 50-mile radius of the airport) than at en route facilities. As a result of these factors, FAA asserts that it is unable to develop an automated system with enough parameters to distinguish between the varying distances at which aircraft are allowed to operate. This is in contrast to en route facilities, where very few parameters have to be set to measure separation standards in a large operating environment.

The purpose of our review was not to assess whether FAA could develop automated systems that could identify operational errors at TRACON and tower facilities. Instead, we are making recommendations that can provide FAA with procedures that can be used in the near term. Specifically, TRACON and tower facilities already have systems in place that could aid FAA in improving the integrity of operational errors reporting.

Data from radar and voice recording systems at TRACON and tower facilities, if periodically reviewed, could help FAA determine when unreported operational errors occur. However, FAA has guidance in place that limits its use of radar playback tools to identify operational errors. Radar playback tools are used by air traffic personnel to determine the amount of separation that existed between aircraft after an incident is reported. Currently, FAA’s guidance “Air Traffic Quality Assurance” (FAA Order 7210.56C) limits FAA from “arbitrarily” using radar playback tools as a primary source (or triggering event) for reporting an operational error or initiating an investigation. Playback tools can be used only

after a suspected incident has been reported. Given the importance of accurately reporting operational errors to measure the safety of the air traffic system, FAA should take steps to rescind this provision in its air traffic quality assurance order.

**TRACON Facilities.** All TRACON facilities have playback tools that allow them to easily review radar and voice data and recreate air traffic incidents. FAA should require facility quality assurance staff<sup>6</sup> to periodically review this radar and voice data on a sample basis so the facilities can determine whether operational errors are being accurately reported. There are several methods quality assurance staff could use to sample radar and voice data to identify unreported operational errors. For example, facility quality assurance staff could:

- Review a sample of conflict alert data during time periods when alerts occur. By sampling data from conflict alert logs, facility quality assurance staffs could target high-risk periods for periodic review and determine if unreported operational errors have occurred.
- Develop sampling methods that would target high-risk factors that contribute to operational errors. For example, based on operational error trend analyses, the quality assurance staff could develop sampling plans to review radar and voice data during peak traffic times when operational errors are more likely to occur.
- Sample other air traffic incidents that are recorded on the facility's daily record of operations that were not identified as operational errors. FAA's quality assurance order requires air traffic personnel to document all public inquiries or miscellaneous incidents on the facility's daily records. Facility personnel are required to review these incidents to determine if an employee, a procedure, or equipment may have contributed to the incident and to record the conclusion of the review on the facility's daily records. Facility quality assurance staff could sample incidents recorded on these records to verify that these incidents were not operational errors.

TRACON radar and conflict alert systems also provide coverage of air traffic being monitored by controllers in tower facilities. Data from these systems have been used in the past to identify operational errors that occurred in the air and were caused by tower controllers. Therefore, FAA could sample TRACON radar and conflict alert data to identify unreported operational errors that occur in the air.

**Tower Facilities.** At tower facilities, most operational errors occur on the ground, rather than in the air. For example, in FY 2003, 104 of the 142 operational errors

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<sup>6</sup> All air traffic control facilities have staff responsible for the oversight of quality assurance at the facility. This oversight includes ensuring all operational errors are accurately reported and investigated.

reported by tower facilities occurred on the ground. FAA now has systems in place or planned at 59 of its air traffic tower facilities that could be used to identify operational errors that occur on the ground. Specifically, 34 tower facilities have Airport Movement Area Safety Systems (AMASS), which provide FAA the capability to review runway surface incidents after they happen to determine if operational errors have occurred. AMASS was developed as an automated tool to alert controllers of potential runway accidents and is used to verify when runway incursions have occurred. Runway incursions are caused when the actions of a pilot, vehicle, pedestrian, or controller allows an aircraft or vehicle to inappropriately enter an active runway. Runway incursions caused by controllers are also be classified as operational errors. While the overall number of runway incursions has decreased, the number of runway incursions caused by controllers (operational errors) increased from 72 in FY 2002 to 84 in FY 2003.

Although the parameters for AMASS are set to identify when a vehicle or aircraft inappropriately enters an active runway, it could also be used to identify unreported operational errors. The ground radar data are recorded and can be reviewed to determine if controllers have allowed aircraft to come too close together on the ground.

In addition, FAA plans to implement a surface radar and conflict alerting system (Airport Surface Detection Equipment Model X or ASDE-X) at 25 additional tower facilities. AMASS and ASDE-X will provide FAA automated means to identify operational errors on the runway surface at towers. Therefore, FAA should take advantage of this technology and establish procedures (similar to the audit process used at en route facilities) that require tower facilities with AMASS or ASDE-X to conduct random reviews of radar and voice data to ensure that all operational errors are reported.

**Evaluation of Air Traffic Control Facilities.** FAA's Air Traffic Office of Safety Evaluations conducts full-facility evaluations, no-notice reviews, and special reviews of all air traffic control facilities. The reviews evaluate whether facilities are complying with air traffic control procedures and are operating safely. During reviews at en route facilities, air traffic evaluation personnel verify that these facilities are conducting required weekly audits. In addition, these evaluators conduct their own audits of the facilities' alert logs. Once FAA establishes audit procedures that require TRACON and tower facilities to randomly audit radar and voice data, FAA's evaluation group should be required to review and test audit records at TRACON and tower facilities to ensure these facilities are conducting periodic audits of radar and voice data.

## RECOMMENDATIONS

To strengthen the integrity of the reporting of operational errors at TRACON and tower facilities, we recommend that FAA:

1. Rescind provisions in FAA's Order 7210.56C, "Air Traffic Quality Assurance," that prevent FAA from using playback tools to identify operational errors.
2. Establish internal audit procedures that require quality assurance staff at TRACONs and towers that have AMASS or ASDE-X to periodically review a sample of radar and voice data to assess whether operational errors are being fully reported. Sampling methods should (a) include periods when TRACON or AMASS/ASDE-X alerts occur, (b) target high-risk factors (e.g., peak traffic times), and (c) take into account other air traffic incidents that were not identified as operational errors.
3. Require the air traffic evaluation staff to review and test audit records at TRACON and tower facilities to ensure these facilities are in fact conducting periodic audits of radar and voice data.

## MANAGEMENT COMMENTS AND OIG RESPONSE

A draft of this report was provided to FAA on August 20, 2004. On September 15, 2004, FAA provided written comments. FAA concurred with our recommendations, but its proposed actions were not clear or specific on how or when the Agency would make the necessary changes to address the intent of our recommendations. A summary of FAA's comments and our analyses follow.

**Recommendation 1: Concur.** FAA stated that current orders allow the use of playback tools to identify facility operational errors. However, FAA recognized the need to improve its guidance and proposed to review existing orders to ensure the inclusion of audit guidance within national regulations.

**OIG Response:** FAA's current guidance places limits on its use of playback tools and prevents FAA from using these tools to identify operational errors without a triggering event or indication that an error has already occurred. In our opinion, FAA needs to rescind this provision or otherwise modify it so that it is clear playback tools can be used to conduct random audits that will ensure all operational errors are reported. Accordingly, FAA needs to clarify the specific action it plans to take to address this recommendation.

**Recommendation 2: Concur.** FAA indicated that control and audit functions exist but acknowledged that there was a need to improve audit control requirements in its national orders. FAA agreed to implement management controls that will enhance audit functions within TRACON and tower facilities and formalize procedures and requirements in its national orders.

**OIG Response:** Although FAA indicated it will implement management controls that will enhance audit functions at TRACON and towers, it is not clear exactly what management controls it plans to implement or if FAA plans to require these facilities to periodically review a sample of radar and voice data to assess whether operational errors are being fully reported. FAA's Air Traffic Quality Assurance Order currently only requires en route facilities to conduct audits and does not contain any audit requirements for TRACONs and towers to conduct audits of radar and voice data for identifying unreported operational errors. Therefore, FAA's response does not specifically address our recommendation and further clarification is needed on what FAA plans to do.

**Recommendation 3: Concur.** FAA proposed to review and ensure that its air traffic evaluations guidance provides for secondary oversight of facility audits.

**OIG Response:** The intent of our recommendation was for the air traffic evaluation staff to review and test TRACON and tower audits of radar and voice data to ensure that substantially all operational errors are reported. Unless those facilities conduct audits, which is uncertain based on FAA's proposed actions, FAA's reply is considered nonresponsive. FAA needs to provide more details to clarify the specific actions it plans to take to ensure its air traffic evaluations guidance provides for secondary oversight of facility audits.

## **ACTION REQUIRED**

In accordance with Department of Transportation Order 8000.1C, we request that FAA provide additional information that more clearly identifies the specific actions FAA plans to take to address each of the three recommendations. We also request that you provide a timeframe for implementing intended actions for all recommendations. Please provide your response within 30 days. The recommendations will remain open until we receive your response.

We appreciate the courtesy and cooperation of FAA representatives during this audit. If you have any questions, please contact me at (202) 366-1992 or David Dobbs, Assistant Inspector General for Aviation Audits, at (202) 366-0500.

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## **EXHIBIT A. SCOPE, METHODOLOGY, AND PRIOR AUDIT COVERAGE**

The audit was conducted between March and July 2004 and in accordance with Government Auditing Standards prescribed by the Comptroller General of the United States. Our review included evaluating FAA procedures for reporting operational errors at en route, TRACON, and tower air traffic control facilities. In addition, we met with FAA Headquarters air traffic personnel to discuss the accuracy of operational error reporting and alternative methods for verifying the accuracy of error reporting at TRACON and tower facilities. We also reviewed FAA reports on operational error data for FY 2003 and the first 8 months of FY 2004. We did not test the accuracy of these reports, but did evaluate the controls used to record these reports into FAA databases. Finally, we evaluated hotline complaint reports for the 2-year period from April 24, 2002, through May 3, 2004.

In December 2000<sup>7</sup>, we reported that operational errors may be understated because of FAA's reliance on controllers to self-report these errors. We found that adequate documentation was not always available to confirm whether operational errors occurred because FAA did not retain air traffic radar and voice recording tapes past 15 days. We recommended that FAA extend the retention period for air traffic radar and voice recording tapes to 45 days. FAA partially concurred with our recommendation, indicating that retaining all tapes for 45 days would create a storage problem. Instead, FAA agreed to retain radar and voice tapes of all known or suspected air traffic incidents for 45 days.

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<sup>7</sup> OIG Report Number AV-2001-011, "Actions To Reduce Operational Errors and Deviations Have Not Been Effective," December 15, 2000.

## APPENDIX. MANAGEMENT COMMENTS



U.S. Department  
of Transportation

**Federal Aviation  
Administration**

# Memorandum

Subject: **INFORMATION:** Draft Report on Controls Over the Reporting of Operational Errors Federal Aviation Administration

Date: Sep 15 2004

From: Assistant Administrator for Financial Services and Chief Financial Officer

Reply to Attn. of:

To: Assistant Inspector General for Aviation Audits

As requested in your memorandum dated August 20, the following is the Federal Aviation Administration's (FAA) response to each recommendation in the subject draft report.

**Recommendation 1:** Rescind provisions in FAA's Air Traffic Quality Assurance Order 7210.56C that prevent FAA from using playback tools to identify operational errors.

**FAA Response:** Concur. Current orders allow the use of playback tools to identify facility operational errors. The Air Traffic Organization (ATO) recognizes the need to improve guidance regarding audit procedures and will review FAA National Order 7210.56 (Air Traffic Quality Assurance Order) to ensure the inclusion of audit guidance within national regulations.

**Recommendation 2:** Establish internal audit procedures that require quality assurance staff at terminal radar approach controls (TRACON) and towers that have AMASS or ASDE-X to periodically review a sample of radar and voice data to assess whether operational errors are being fully reported. Sampling methods should (a) include periods when TRACON or AMASS/ASDE-X alerts occur, (b) target high-risk factors (e.g., peak traffic times), and (c) take into account other air traffic incidents that were not identified as operational errors.

**FAA Response:** Concur. Control and audit functions exist, however the ATO acknowledges the need to improve and identify, within national orders, audit

**Appendix. Management Comments**

control requirements. The ATO will implement management controls that will enhance audit functions within Air Traffic TRACON and tower facilities and formalize procedures and requirements.

**Recommendation 3:** Require the air traffic evaluation staff to review and test audit records at TRACON and tower facilities to ensure these facilities are in fact conducting periodic audits of radar and voice data.

FAA Response: Concur. The ATO will review and ensure National Order 7110.10 (Air Traffic Safety Evaluations Order) provides for secondary oversight of the facility audits.



Ramesh K. Punwani