



U.S. Department of  
Transportation  
Office of the Secretary  
of Transportation  
Office of Inspector General

# Memorandum

Subject: **INFORMATION:** OIG Investigation  
#109Z00021SINV, Re: TRACON Management  
at Detroit Wayne County Metropolitan Airport  
(OSC File No. DI-08-3138)

Date: February 3, 2011

From: Ronald C. Engler *RCE*  
Director  
Special Investigations, JI-3

Reply to  
Attn. of: X6-4189

To: Judith S. Kaleta  
Assistant General Counsel for General Law  
Office of General Counsel

This memorandum responds to a U.S. Office of Special Counsel (OSC) email dated January 25, 2011, requesting copies of reports referred to in a May 2009 memorandum from Mary Kate Strawbridge, Manager, Federal Aviation Administration (FAA), Air Traffic Organization (ATO) Quality Assurance, to James C. Bedow, Acting Director, FAA ATO Quality Assurance, regarding an on-site investigation at the Detroit Wayne County Metropolitan Airport (Detroit Metro) Air Traffic Control Tower and Terminal Radar Approach Control (TRACON) facility. Attached are copies of five of the six reports requested by OSC:

- Attachment 1. OIG Investigation Report Number 081HB33H001.
- Attachment 2. FAA Air Traffic Safety Oversight (AOV) Audit of Intersecting Runways and Non-intersecting Runways. (Note: The original audit report includes information related to airports other than Detroit Metro. The copy of the report produced for OSC has been redacted to exclude information concerning those other airports.)
- Attachment 3. AOV memorandum related to the March 24, 2008, unscheduled follow-up audit of the Detroit Metro Air Traffic Control Tower Southwest Flow Configuration.
- Attachment 4. Safety Investigations and Evaluations memorandum dated October 19, 2007, responding to AOV's Letter of Investigation. On-site investigation conducted October 15 - 17, 2007.

Attachment 5. Central Service Area Safety Assurance Group Operational Evaluation Team's Quality Control Review report of the Detroit TRACON. The on-site review was conducted February 18-20, 2009.

The report associated with an AOV and Safety Quality Assurance on-site investigation on May 12, 2008, is not attached. AOV and Safety Quality Assurance are locating the report. Once we receive it from them, we will send it to you to forward to OSC.

OIG Investigation #I09Z00021SINV  
TRACON Management at Detroit Wane County Metropolitan Airport  
(DI-08-3138)

**ATTACHMENT 1**

**OIG Investigation Report Number 081HB33H001**



THE SECRETARY OF TRANSPORTATION

WASHINGTON, D.C. 20590

June 10, 2009

William E. Reukauf  
Acting Special Counsel  
U.S. Office of Special Counsel  
1730 M Street, NW, Suite 218  
Washington, DC 20036

Re: OSC File Nos. DI-08-0591 and DI-08-1696

Dear Mr. Reukauf:

Thank you for your correspondence of March 12, 2008, and May 20, 2008, concerning whistleblower allegations of management improprieties at the Federal Aviation Administration's (FAA) Detroit Metropolitan Airport (DTW) Air Traffic Control Tower (ATCT). The complainant, Vincent Sugent, a senior controller at DTW, raised a number of concerns, including that DTW management operated an air traffic approach and departure configuration known as the "Southwest Flow" in an unsafe manner and in violation of FAA policy. Among his other concerns, Mr. Sugent asserted that management guidance to controllers for directing traffic on "Taxiway Quebec" was contradictory, thus creating confusion. In addition, Mr. Sugent expressed concern that FAA managers provided misleading information to Senator Carl Levin in response to the Senator's inquiry about the safety of the Southwest Flow.

The former Secretary of the U.S. Department of Transportation, Mary Peters, delegated responsibility for investigating Mr. Sugent's concerns to the Department's Inspector General, who has concluded his investigation and provided me the enclosed memorandum report containing his findings and recommendations.

In short, the Office of Inspector General (OIG) substantiated several of Mr. Sugent's allegations, including that from May 2007 to October 2007, a critical segment of DTW's Southwest Flow operation was often non-compliant with an applicable FAA safety directive prescribing aircraft separation standards for intersecting runways. This allowed a potentially unsafe condition to persist. The OIG further found that DTW management failed to provide controllers with proper instruction on the safe operation of the Southwest Flow, and management guidelines for certain Taxiway Quebec operations were contradictory and confusing.

The OIG also concluded that DTW's Manager and then-Staff Manager provided wording for FAA's September 17, 2007, response to Senator Levin that was, at a minimum, disingenuous. In particular, FAA advised Senator Levin that a recent FAA audit had not found the Southwest Flow to be unsafe. In fact, the FAA audit found non-compliance with an FAA safety Order, violations of which necessarily pose safety implications. The FAA sent a clarifying letter to Senator Levin in April 2008, but only after your office referred Mr. Sugent's concerns to the Department for investigation.

On April 3, 2009, OIG issued a report to FAA's Acting Administrator containing its findings and recommendations in this matter. By the enclosed memorandum dated May 6, 2009, the Acting Administrator responded to OIG, concurring with each of its recommendations. The FAA's corrective actions include discontinuing the Southwest Flow, completing an audit of DTW's controller training program by June 30, 2009, and counseling the DTW Manager and Operations Manager for failing to ensure the Southwest Flow complied with FAA policy.

The Acting Administrator also reported that the DTW Manager and then-Staff Manager have been counseled about the wording they provided for FAA's September 17, 2007, letter to Senator Levin concerning the safety of the Southwest Flow configuration. Although the Acting Administrator concluded that these managers misunderstood information verbally briefed to them by FAA's audit group, and thus did not intend to mislead Senator Levin, OIG found they nonetheless waited nearly 7 months after receiving the audit report to provide Senator Levin with corrected correspondence.

The Inspector General and I have reviewed the Acting Administrator's response and believe FAA's corrective actions address OIG's findings and recommendations. However, I have reservations about the adequacy of the administrative action for the managers who failed to prepare a timely clarification of FAA's September 17, 2007, letter to Senator Levin, which they principally authored. The FAA, through these managers, was obligated to promptly provide Senator Levin with a straightforward correction; this did not occur for almost 7 months. Accordingly, I will ask the new Administrator to examine these circumstances to determine whether formal disciplinary action is warranted and to apprise you of the disposition.

Transportation safety is the Department's top strategic goal. Transparency and accountability are also imperative, particularly with respect to the Department's communications with Congress, stakeholders, and especially our Nation's travelers.

I appreciate Mr. Sugent's diligence in raising his concerns.

Sincerely yours,

Ray LaHood



Enclosures: 2



# Federal Aviation Administration

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## Memorandum

Date: May 6, 2009

To: Rick Beitel, Assistant Inspector General  
for Washington Investigative Operations

From: *Lyne*  
Lyne Osmus, Acting Administrator

Subject: Detroit Metropolitan Airport (DTW) Airport Traffic Control Tower Operations

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We have reviewed the above identified OIG Report and submit the following responses to the recommendations contained in the report:

1. (a) Recommendation: Before DTW considers reinstating operation of the Southwest Flow, it must consult with ATO's Office of Terminal Safety and Operations and the Air Traffic Safety Oversight Service (AOV) to develop detailed procedures for the safe operation of this configuration.

**Response:** Concur. DTW in conjunction with ATO-Terminal will review the Southwest Flow operations to include current procedures and compliance. Modifications or changes and the approval processes will be accomplished through the Safety Management System (SMS) processes and completed by October 31, 2009. The SMS process will include a review by the Air Traffic Safety Oversight Service (AOV). In addition, AOV may elect to audit any procedures developed by the ATO whenever they deem necessary.

(b) Recommendation: ATO conduct an audit into DTW's air traffic controller training program to ensure that controllers are provided with thorough, consistent, and uniform training regarding proper air traffic procedures pertaining to intersecting runways.

**Response:** Concur. ATO's Office of Safety and Office of Terminal Safety and Operations Support will jointly conduct an audit of DTW's air traffic controller training program to ensure that controllers are provided with thorough, consistent, and uniform training regarding proper air traffic procedures pertaining to intersecting runways. The audit report will be completed by June 30, 2009.

(c) Recommendation: Consider appropriate administrative action for DTW Manager Joseph Figliuolo and DTW Operations Manager Kevin Grammes based on their failure to ensure that the Southwest Flow complied with FAA Order 7110.65 (regarding the safe operation of runways with intersecting flight paths), and their failure to ensure that controllers received adequate

training and guidance. Mr. Figliuolo and Mr. Grammes were counseled. We believe the counseling was effective and produced the required change in procedures and understanding.

**Response:** Concur. Administrative action has been effective in ensuring compliance with procedures pertaining to Southwest Flow operations. The Director of Operations for Central Service Area counseled the DTW Manager. Closer supervision was provided by monthly reports through November 2008, followed by quarterly reports to the Director. The Director will meet with the DTW Manager on April 23, 2009 to reinforce expectations. Additionally, the Director will require that the DTW Manager provide further follow-up to the facility staff.

2. (a) Recommendation: Consider appropriate administrative action for DTW Manager Joseph Figliuolo and former DTW Staff Manager Marcia Boliard for providing information for FAA's initial response to Senator Levin that was, at a minimum, disingenuous.

**Response:** Concur. The FAA investigated and determined that Mr. Figliuolo and Ms. Boliard misunderstood the AOV verbal outbrief reference the Southwest Flow operations. When they received the written response from AOV, it was recognized that it differed from their understanding of the initial verbal briefing. Mr. Figliuolo and Ms. Boliard were counseled. We believe the counseling was effective and produced the required change in procedures and understanding. Reference the FAA's response to Senator Levin, there was no intent to mislead. The information provided to the Senator was based on DTW management's understanding of the AOV verbal briefing. The Director of Central Service Area counseled the managers on providing information based on verbal briefings.

(b) Recommendation: The Acting Administrator apprises Senator Levin of the disposition of actions at DTW pursuant to Mr. Sugent's concerns and our findings and recommendations.

**Response:** Concur. I will forward Senator Levin a copy of the response to the OIG.

3. (a) Recommendation: Promptly determine the correct location for all "hold-short" lines on Taxiway Quebec and ensure that painted lines and lighted signs are situated correctly.

(b) modify ASDE-X in accordance with the foregoing determinations. (c) properly train controllers on "hold-short" requirements. (d) DTW, with the review and concurrence of ATO-Terminal's Office of Terminal Safety and Operations Support, revise Subchapter 5-7.b (II) of the ground control chapter of its Operating Manual by changing wording from "should" to "shall."

**Response:** 3 (a) Concur. ATO's Office of Runway Safety will assist in providing an assessment for all "hold-short" lines and lighted signs on Taxiway Quebec. We will request that Airports and the Airport Authority bring identified deficiencies into compliance and advise of the expected completion date. The Office of Runway Safety will initiate these actions by May 30, 2009.

**Response:** 3 (b) Concur. The FAA will ensure ASDE-X and hold short requirements are integrated pending completion of actions in 3 (a).

**Response:** 3 (c) Concur. DTW will review the training on hold short requirements for Taxiway Quebec operations based upon any changes that result from actions addressed in 3a and 3b. Any

changes to training found to be appropriate following the review will be completed by June 30, 2009.

**Response:** 3 (d) Concur. DTW, with the review and concurrence of AJT, will revise as necessary the subchapter 5-7 b.(11) of the ground control chapter of its Operating Manual by changing the word "Should" to Shall". This will be completed by June 30, 2009.

4. Recommendation: Require that AOV conduct a follow-up audit to ensure that DTW's corrective measures regarding segregation of outbound jet and propeller aircraft are still being properly trained and implemented, and are sufficient to remedy the safety concerns previously identified by AOV.

**Response:** Once the above actions are completed, the ATO will request that AOV conduct an audit of actions taken in response to the OIG report.





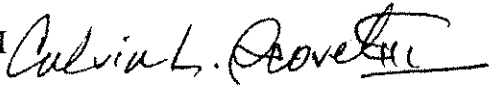
# Memorandum

**U.S. Department of  
Transportation**

Office of the Secretary  
of Transportation

Office of Inspector General

Subject: ACTION: OIG Investigation #08IHB33H001, Date: May 18, 2009  
Re: Detroit Air Traffic Control Tower

From: Calvin L. Scovel III  Reply to  
Inspector General Attn of:

To: The Secretary

In accordance with the statutory requirements of the U.S. Office of Special Counsel (OSC), this presents our investigative findings and recommendations stemming from whistleblower safety concerns disclosed by Vincent Sugent, a senior Air Traffic Controller at FAA's Detroit Metropolitan Airport (DTW) Air Traffic Control Tower (ATCT). We conducted our investigation with technical assistance from FAA's Air Traffic Safety Oversight Service (AOV)<sup>1</sup>, which is independent of the Air Traffic Organization (ATO), to which DTW reports.

Mr. Sugent raised multiple concerns regarding the safety of air traffic operations at DTW to OSC. OSC, in turn, referred Mr. Sugent's concerns to then-Secretary Peters by letters dated March 12, 2008 (OSC File No. DI-08-0591), and May 20, 2008 (OSC File No. DI-08-1696). Specifically, Mr. Sugent alleged the following:

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<sup>1</sup> AOV was established on March 14, 2005, by the FAA Administrator in response to recommendations, made by the National Civil Aviation Review Commission and the International Civil Aviation Organization, that air traffic service providers be subject to safety oversight by an FAA entity outside the Air Traffic Organization (ATO). AOV's mission includes having authority to develop or adopt safety standards, and to ensure that the ATO complies with those standards. AOV is part of FAA's Aviation Safety Organization, and provides independent oversight of the ATO in a manner structurally similar to FAA's oversight of air carriers.

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U.S. Department of Transportation – Office of Inspector General

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1. DTW management officials operated an air traffic approach and departure configuration known as the "Southwest Flow"<sup>2</sup> in a manner that was unsafe because it violated an applicable FAA safety Order, and management guidance to DTW controllers regarding this configuration was confusing and inadequate.
2. FAA officials provided misleading information to Senator Carl Levin in response to the Senator's inquiry about the safety of the Southwest Flow.
3. The "hold-short" lines on Taxiway Quebec and as depicted on controller monitor screens via ASDE-X,<sup>3</sup> are insufficient for controllers to comply with DTW guidance for directing traffic on this Taxiway. In addition, language and guidance contained in a DTW Notice and DTW's local Operating Manual for directing traffic on Taxiway Quebec is contradictory, creating unnecessary confusion for controllers.
4. Management has not implemented necessary changes to written guidance provided to controllers for segregating jet and propeller aircraft departures.
5. DTW controllers were unable to use an electronic communication system when transmitting Standard Instrument Departure (SID) routes to aircraft traveling to several airports in Ohio.

Secretary Peters delegated investigation of these allegations to our office. If you accept the results of our investigation, we recommend you transmit this report to the Special Counsel, along with FAA's statement of corrective action in response to our findings and recommendations.

## **Results in Brief**

In short, our investigation substantiated several of Mr. Sugent's concerns. Foremost, we found that between approximately May 2007 and October 2007, a critical segment of DTW's "Southwest Flow" operation was often non-compliant with an applicable FAA safety Order, which prescribes aircraft separation standards for intersecting runways. This allowed a potentially unsafe condition to persist, as evidenced by our

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<sup>2</sup> The Southwest Flow refers to an air traffic operation in which aircraft depart or arrive from the north and head to the south, while other aircraft on an intersecting runway depart or arrive from the east and head to the west. This operation is not unique to DTW.

<sup>3</sup> Airport Surface Detection Equipment, Model X (ASDE-X), is a runway-safety tool that enables air traffic controllers to detect potential runway conflicts by displaying, on controller monitor screens, the details of aircraft and vehicle movement on runways and taxiways.

finding of at least one controller operational error directly attributable to DTW's non-compliant operation of the Southwest Flow.<sup>4</sup>

We concluded that DTW's non-compliance resulted from both factors inherent to the configuration, and DTW management's failure to provide controllers with proper instruction on its safe operation. We further determined that, for two months during this period, DTW Operations Manager Kevin Grammes knowingly allowed the non-compliant operation to occur. Due to the adverse safety implications, DTW applied interim corrective measures in October 2007, but ultimately discontinued the Southwest Flow in March 2008 because the corrective measures could not assure compliance with FAA Order 7110.65.<sup>5</sup>

Additionally, we concluded that DTW Manager Joseph Figliuolo and then-Staff Manager Marcia Boliard provided wording for FAA's September 2007 response to Senator Levin that was, at a minimum, disingenuous. FAA sent a clarifying letter to Senator Levin in April 2008—seven months later, and only after OSC referred Mr. Sugent's concerns for investigation. The US Attorney's Office, Eastern District of Michigan, declined to consider prosecution of this matter.

We have presented our findings and recommendations in this matter to FAA's Acting Administrator. Our recommendations are detailed later in this report.

**Allegation 1:** DTW management operated an air traffic configuration known as the "Southwest Flow" in a manner that was unsafe because it violated an applicable FAA safety Order, and guidance provided to DTW controllers regarding this configuration was confusing and inadequate.

***Findings:*** DTW temporarily discontinued a critical segment of the Southwest Flow operation in October 2007, after AOV and ATO's Office of Safety Services (ATO-

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<sup>4</sup> An "operational error" occurs when less than 90% of the minimum separation standard between two or more aircraft, or between an aircraft and terrain/obstacles, is met. We determined that at least one operational error, which occurred on October 17, 2007, was directly attributable to DTW's non-compliant operation of the Southwest Flow. However, we were unable to determine whether additional such operational errors occurred between May-October 2007 due to the unavailability of radar data. Our investigation was initiated after DTW ceased operating the Southwest Flow, and all relevant data had been destroyed in accordance with FAA's 45-day radar data retention policy.

<sup>5</sup> In a subsequent OSC disclosure referral (OSC File No. DI-08-3157 and DI-08-2777), assigned to our office in January 2009, Mr. Sugent, along with another complainant, reported that DTW management had, in effect, reinstated operation of the Southwest Flow on at least one day in summer 2008, during which multiple operational errors occurred. We are separately investigating this issue.

Safety) conducted multiple audits and determined that the segment (known as the "dependent operation") was non-compliant with FAA Order 7110.65, Paragraph 3-9-8, which prescribes procedures for the safe operation of runways with intersecting flight paths. In particular, DTW's non-compliance with this Order stemmed from lack of adequate spacing between aircraft, as evidenced by at least one controller operational error, occurring on October 17, 2007, directly attributable to DTW's non-compliant operation of the Southwest Flow. DTW ultimately discontinued the Southwest Flow in March 2008 because the corrective measures could not assure compliance with FAA Order 7110.65.

DTW management was first notified of its non-compliance with FAA Order 7110.65, Paragraph 3-9-8, in August 2007, after the non-compliance was identified during an AOV audit. A subsequent audit conducted by ATO-Safety in October 2007 also identified non-compliance with the Order. We determined that while the non-compliance occurred from approximately May 2007 to October 2007, DTW Operations Manager Kevin Grammes knowingly allowed the non-compliant operation of the Southwest Flow to occur from August 2007 to October 2007.

Mr. Grammes, after being informed of DTW's non-compliance in August 2007 by AOV, failed to instruct Front Line Managers (FLMs) and controllers to properly execute the Southwest Flow configuration in a manner which ensured compliance with the Order. In fact, we determined that DTW management, on several occasions from May 2007 to January 2008, presented controllers with inconsistent instructions and inadequate guidance for properly executing the Southwest Flow. Although we did not find evidence to suggest DTW Air Traffic Manager Joseph Figliuolo was aware of DTW's continued non-compliance, as the facility Manager, Mr. Figliuolo bears ultimate responsibility for ensuring the facility conducts air traffic operations in compliance with FAA Order 7110.65.

In addition to ultimately discontinuing the Southwest Flow in March 2008, because the corrective measures could not assure compliance with FAA Order 7110.65, DTW has taken steps to improve management-controller communication by implementing a new training program, and standardizing controller briefings. However, the effectiveness of these program enhancements has not been evaluated by FAA following implementation in mid-2008.

**Recommendations:** (a) Before DTW considers reinstating operation of the Southwest Flow, it must consult with ATO's Office of Terminal Safety and Operations and AOV to develop detailed procedures for the safe operation of this configuration; (b) ATO conduct an audit into DTW's newly-implemented air traffic controller training program to ensure that controllers are provided with thorough, consistent, and uniform training; and (c) consider appropriate administrative action for DTW

Manager Joseph Figliuolo and DTW Operations Manager Kevin Grammes based on their failure to ensure that the Southwest Flow complied with FAA Order 7110.65, and their failure to ensure that controllers received adequate training and guidance.

**Allegation 2:** FAA officials provided misleading information to Senator Carl Levin in response to the Senator's inquiry into the safety of the Southwest Flow.

***Findings:*** By letter dated September 17, 2007, Barry Cooper, FAA's Great Lakes Regional Administrator, informed Senator Levin that AOV visited DTW in August 2007 to perform an audit of the Southwest Flow operation, and that "AOV did not find this operation to be unsafe." After OSC referred Mr. Sugent's whistleblower allegations to the Secretary in March 2008, Mr. Cooper sent Senator Levin a second letter, dated April 25, 2008, clarifying his previous correspondence.

In his April 25, 2008, letter, Mr. Cooper advised Senator Levin that his previous letter "was based on incomplete information," and did not reflect information contained in an audit report issued by AOV in September 2007. He further stated, "[a]s documented by AOV, the Air Traffic Control facility at Detroit was, in fact, not consistently compliant with a specific safety procedure when utilizing the [Southwest Flow]."

During AOV's August 2007 audit (which occurred prior to Mr. Cooper's initial letter to Senator Levin), AOV audit staff briefed DTW management that they had observed instances of non-compliance with sections of FAA Order 7110.65 governing the operation of air traffic on runways with intersecting flight paths. In our view, Mr. Cooper's initial characterization of AOV's findings to Senator Levin was, at a minimum, disingenuous. AOV's audit found non-compliance with this FAA safety Order, violations of which necessarily pose safety implications. Moreover, despite having attended the AOV briefing in which they were informed that the facility was non-compliant with this safety Order, Mr. Figliuolo and then-DTW Staff Manager Marcia Boliard provided the information for Mr. Cooper's response to Senator Levin, omitting any reference to AOV's finding of non-compliance with the Order.

We requested that the US Attorney's Office (USAO), Eastern District of Michigan, consider criminal prosecution of anyone who provided the information contained in Mr. Cooper's letter to Senator Levin, on the basis that the information in the letter was false, and thus a violation of 18 USC § 1001. However, on May 6, 2009, they declined prosecution, indicating that the case did not have sufficient evidence to conclude that the statements provided to Senator Levin were literally and deliberately false.

**Recommendations:** (a) Consider appropriate administrative action for DTW Manager Joseph Figluolo and former DTW Staff Manager Marcia Boliard for providing information for FAA's initial response to Senator Levin that was, at a minimum, disingenuous; and (b) the Acting Administrator apprise Senator Levin of the disposition of actions at DTW pursuant to Mr. Sugent's concerns and our findings and recommendations.

**Allegation 3:** The "hold-short" lines on Taxiway Quebec, and as depicted on controller monitor screens via ASDE-X, are insufficient for controllers to comply with DTW guidance for directing traffic on this taxiway. In addition, language and guidance contained in a DTW Notice and DTW's Operating Manual for directing traffic on Taxiway Quebec is contradictory, creating unnecessary confusion for controllers.

**Findings:** The "hold-short" markings and signage on Taxiway Quebec are currently at 750 feet on either side of the Runway 4R extended centerline. The DTW Operating Manual, however, directs controllers to hold traffic short on Taxiway Quebec at 200 feet on either side of the extended centerline. Moreover, neither the DTW controllers and managers we interviewed, nor the Airports Division personnel we contacted, were able to definitively say whether one, the other, or both "hold-short" lines are currently required.

We determined that differences in language contained in the "local control" chapter of the Manual, but not included in the "ground control" chapter, are appropriate in light of the different responsibilities of the two air traffic control tower positions. However, a conforming change in language from "should" to "shall" is needed in the ground control chapter to comport with the word "required" in that same chapter.

**Recommendations:** (a) Promptly determine the correct location for all "hold-short" lines on Taxiway Quebec and ensure that painted lines and lighted signs are situated correctly; (b) modify ASDE-X in accordance with the foregoing determinations; (c) properly train controllers on "hold-short" requirements; and (d) DTW, with the review and concurrence of ATO-Terminal's Office of Terminal Safety and Operations Support, revise Subchapter 5-7.b(11) of the ground control chapter of its Operating Manual by changing language from "should" to "shall."

**Allegation 4:** DTW management has not implemented necessary changes to written guidance provided to controllers for segregating jet and propeller aircraft departures.

**Findings:** Exceptions to segregation guidance between jet and propeller aircraft created confusion and constituted a potential safety issue until May 2008. We determined that DTW resolved its procedural deficiencies by simplifying segregation

procedures and eliminating the numerous exceptions that controllers had previously found confusing. In August 2008, the new procedures were incorporated into a Letter of Agreement (LOA) between DTW's ATCT and Terminal Radar Approach Control (TRACON) facility.

**Recommendation:** AOV conduct a follow-up audit to ensure DTW has taken sufficient action to correct the identified deficiencies.

**Allegation 5:** DTW controllers were unable to use an electronic communication system when transmitting SID routes to aircraft traveling to several airports in Ohio.

**Findings:** We determined that if the electronic communication system fails, the back-up procedure is for the clearance delivery controller to verbally provide the routing information to any departing aircraft, just as DTW now does for aircraft headed to the affected Ohio airports.

Additionally, DTW recently developed a procedure to ensure all departing aircraft, including those traveling to the airports in Ohio at issue, receive SIDs utilizing the electronic communication system. The proposed procedure is currently under review with DTW management. (Mr. Sugent has reviewed and expressed satisfaction with the proposed procedure.)

## Methodology

To address to Mr. Sugent's concerns, our investigation included a comprehensive examination of DTW's operation of the Southwest Flow. The OIG-led investigative team included an OIG attorney-investigator and air traffic controllers and other technical experts from AOV. Investigators from OIG and AOV conducted interviews and reviewed records at DTW. We conducted 23 interviews in Detroit and Washington, DC, including the following:

- Vincent Sugent, Complainant;
- DTW Manager (and District Manager) Joseph Figliuolo III;
- DTW Operations Manager Kevin Grammes;
- Former DTW Staff Manager Marcia Boliard;
- DTW Support Manager for Training and Quality Assurance Earl Grand;
- DTW's five Front Line Managers (FLMs);
- Eleven DTW air traffic controllers; and
- Two AOV Air Traffic Safety Inspectors who audited DTW's operation of the Southwest Flow in August 2007.

We also reviewed numerous documents, including training records, memoranda, letters, emails, manuals, and applicable FAA regulations and Orders. Additionally, we reviewed findings and reports issued in prior FAA investigations and audits into safety concerns arising from the Southwest Flow.

### **Findings in Detail**

***Finding 1: From approximately May 2007 to October 2007, DTW management operated a critical segment of the “Southwest Flow” configuration in non-compliance with FAA safety Order 7110.65, thereby allowing a potentially unsafe condition to persist. Moreover, from August 2007 to October 2007, the DTW Operations Manager knowingly allowed the non-compliance to occur. Further, DTW managers failed to provide FAA controllers with adequate instruction and training on the correct operation of this configuration.***

We determined that while DTW had conducted the Southwest Flow on a routine basis from approximately May 2007 until March 2008, it temporarily discontinued operation of a critical segment of the Southwest Flow on October 17, 2007. Further, DTW ceased the entire Southwest Flow configuration on March 25, 2008, in response to multiple AOV and ATO-Safety audits in which inspectors voiced concern regarding the potential safety risks posed by aircraft proximity (lack of adequate spacing) and possible wake turbulence in the event of unplanned go-arounds. Prior audits conducted by AOV and ATO-Safety in August 2007 and October 2007, respectively, had identified a “safety compliance issue”; more specifically, that DTW was non-compliant with FAA Order 7110.65, Paragraph 3-9-8, which establishes procedures for the safe operation of runways with intersecting flight paths.

During AOV’s August 2007 audit and contemporaneous verbal briefing, DTW management was informed that they were non-compliant with the FAA Order, and were offered ways in which the facility could come into compliance, to include increasing the spacing of arrivals. In response, to AOV’s briefing, we found that DTW Operations Manager Kevin Grammes promptly conducted briefings with several of the FLMs; however, he failed to provide instructions that ensured compliance with FAA Order 7110.65, Paragraph 3-9-8. In fact, the evidence demonstrates that Mr. Grammes failed to provide instructions differing from the manner in which DTW had operated the Southwest Flow since May 2007, i.e., which AOV found non-compliant. In response to our questions, Mr. Grammes told us it would be inefficient for DTW to increase spacing between aircraft, stating that if DTW increased the gap between aircraft arrivals from 4 to 6 miles to strictly comply with Paragraph 3-9-8, “it’s not even advantageous for us to run this [configuration].”



Mr. Figliuolo told us he was aware of AOV's August 2007 non-compliance findings, but was unaware that some controllers continued to operate the Southwest Flow in a non-compliant manner subsequent to AOV's August 2007 briefing. He told us if controllers were briefed to perform in any manner less than strict adherence to the Order, "[they were] briefed incorrectly."

On October 15-17, 2007, ATO-Safety performed an internal audit of DTW, finding that "[a] portion of [DTW's] operational personnel, including the FLM's [sic], do not have an accurate understanding of the appropriate application of FAA Order 7110.65 paragraph 3-9-8." Therefore, DTW was still non-compliant with the Order two months after AOV's initial finding of non-compliance in August 2007. Significantly, this was evidenced by at least one controller operational error, occurring on October 17, 2007, as observed by ATO-Safety during its audit, directly attributable to DTW's non-compliant operation of the Southwest Flow. When Mr. Figliuolo became aware of the ATO-Safety audit findings, he directed Mr. Grammes to temporarily suspend operation of the Southwest Flow, effective October 18, 2007. Although Mr. Grammes, in a November 7, 2007, memorandum, clarified that the "independent operation" segment of the Southwest Flow could continue, the "dependent operation" segment, which AOV and ATO-Safety found non-compliant, remained suspended.

We determined that on those occasions when managers offered controllers some guidance, the managers generally briefed the controllers verbally, and provided insufficient written instructions. As reflected in a follow-up AOV audit in March 2008, as well as information related to us during numerous interviews, considerable controller confusion resulted due to incomplete or inaccurate briefings provided by DTW managers. Controllers overwhelmingly told us that they were frustrated and confused regarding the proper execution of the Southwest Flow.

In November 2007, in an effort to address the concerns of controllers and the findings of AOV and ATO-Safety, DTW management drafted proposed guidance for conducting both segments of the Southwest Flow (i.e., the independent and dependent operations). The guidance, however, was never issued due to concerns that it would not remedy the problem of non-compliance with FAA Order 7110.65.

As a result, DTW management did not take adequate corrective measures until January 2008, when it clarified the proper operation of the Southwest Flow in Notice 7110.152 by incorporating a copy of Paragraph 3-9-8 in the Notice. AOV found the Notice compliant with FAA Order 7110.65; however, during its follow-up audit in March 2008, AOV found that FLMs and controllers remained confused. In particular, AOV found that controllers were presented four different sets of instructions on how to conduct the Southwest Flow by several FLMs, resulting in varying understandings of this configuration. Consequently, in March 2008, Mr. Figliuolo issued Notice

7110.156, which superseded Notice 7110.152, directing the ATCT to cease operating Southwest Flow in its entirety.

Further, to prevent misunderstandings, in May 2008, Mr. Figliuolo issued a formal directive to subordinate managers to conduct face-to-face briefings with controllers whenever guidance in writing is issued. In addition, new standardized classroom training for operational personnel has been implemented.

Because DTW management was notified of their non-compliance with FAA Order 7110.65 in August 2007, we found that, from August 2007 until October 2007, Mr. Grammes knowingly allowed the non-compliant operation of the Southwest Flow and failed to provide direction that ensured compliance with the Order. Additionally, as the DTW Air Traffic Manager, Mr. Figliuolo is ultimately responsible for ensuring the safe operation of the Southwest Flow in compliance with FAA Order 7110.65.

Given the safety concerns, we are perplexed that it took DTW management approximately five months from AOV's August 2007 audit to issue adequate guidance to controllers incorporating sufficient clarifying instructions for conducting the Southwest Flow, and ten months to ensure controller understanding of operational procedures and materials during face-to-face briefings.

***Finding 2: DTW's Manager and then-Staff Manager provided information for FAA's response to Senator Levin that was, at a minimum, disingenuous.***

We reviewed Mr. Sugent's concern that FAA provided misleading information to Senator Carl Levin in a letter dated September 17, 2007. We found that in June 2007, Mr. Sugent contacted Senator Carl Levin to express concern about the safety of the Southwest Flow. In response, Senator Levin initiated an inquiry with FAA. Barry Cooper, FAA Great Lakes Regional Administrator, responded to Senator Levin by letter dated September 17, 2007. In the letter, Mr. Cooper stated that AOV visited DTW in August 2007 to perform an audit of the Southwest Flow, and that "AOV did not find this operation to be unsafe." The letter made no mention of AOV's finding of non-compliance with an FAA safety Order, posing safety implications.

After OSC referred Mr. Sugent's whistleblower allegations to the Secretary in March 2008, Mr. Cooper sent Senator Levin a clarifying letter, dated April 25, 2008. In the clarifying letter, Mr. Cooper stated that his previous letter contained "incomplete information" and did not reflect information contained in an internal safety report issued by AOV.

Mr. Figliuolo told us that he and then-Staff Manager Marcia Boliard provided the wording for Mr. Cooper's September 17, 2007, letter to Senator Levin, stating AOV

did not find DTW's operation of the Southwest Flow unsafe. Mr. Figliuolo told us that Ms. Boliard was responsible for including the assertion that AOV had not found the Southwest Flow to be unsafe; he confirmed, however, that he approved the inclusion of this statement. When interviewed, Ms. Boliard did not recall whether she provided the wording in question, but she acknowledged that it may have originated in correspondence she and Mr. Figliuolo sent to senior officials within FAA's Central Service Area for inclusion in the response to Senator Levin.

Mr. Figliuolo disagreed that the wording in Mr. Cooper's September 17, 2007, letter was misleading, maintaining that the Southwest Flow had not been "unsafe." He stated that at the time he provided Mr. Cooper with the wording for this letter, he had not yet received a copy of AOV's August 2007 audit report. According to Mr. Figliuolo, the AOV audit report was the first time DTW's operation of the Southwest Flow was deemed a "safety compliance issue." Mr. Figliuolo asserted that DTW management believed the statement in question to be accurate, based on the information available to them at the time.

Kenneth Hartenstine, the AOV auditor who conducted the August 2007 audit and subsequent briefing with DTW managers, including Mr. Figliuolo and Ms. Boliard, considered Mr. Cooper's September 17, 2007, letter to misrepresent AOV's findings. Mr. Hartenstine told us that while he did not expressly characterize the Southwest Flow as "unsafe" when he briefed the DTW managers in August 2007, he clearly informed them that he had directly observed instances of non-compliance with FAA Order 7110.65, Paragraph 3-9-8, which governs the safe operation of this type of air traffic configuration, and, thus for which non-compliance poses safety implications.

We requested that an Assistant U.S. Attorney (AUSA) from the USAO, Eastern District of Michigan consider criminal prosecution of Mr. Cooper, or anyone who provided the information that was contained in Mr. Cooper's letter, on the basis that the information in the letter was false, and thus a violation of 18 USC § 1001. On May 6, 2009, the AUSA declined to pursue prosecution of the case given that there was insufficient evidence to conclude that the statements provided to Senator Levin were literally and deliberately false.

In our view, FAA's initial response to Senator Levin was, at a minimum, disingenuous as FAA was obligated to provide Senator Levin a full and accurate representation of AOV's findings. Significantly, Mr. Figliuolo and Ms. Boliard were verbally informed of DTW's non-compliance with the FAA safety Order prior to preparing FAA's response to Senator Levin; therefore, they should have referenced this key AOV finding in the September 17, 2007, response to Senator Levin.

***Finding 3: DTW's procedural guidance for conducting traffic on Taxiway Quebec is conflicting and confusing in certain areas.***

In addition to his concerns regarding DTW's operation of the Southwest Flow, Mr. Sugent raised several concerns regarding DTW's guidance for conducting air traffic on Taxiway Quebec. Specifically, Mr. Sugent identified four principal issues pertaining to guidance concerning Taxiway Quebec in the "local control" and "ground control" chapters of the DTW Operating Manual: (a) "hold-short" lines on Taxiway Quebec and the ASDE-X are insufficient, thereby preventing controllers from properly directing traffic Taxiway Quebec; (b) DTW's use of the word "should" versus "shall" in Subchapter 5-7.b(11) of the "ground control" chapter of the Manual is inconsistent with wording found elsewhere in the chapter; (c) guidance set forth in DTW Notice 7110.134 concerning Taxiway Quebec was fully incorporated into the "local control" chapter but only partially incorporated into the "ground control" chapter of the DTW Operating Manual; and (d) the Manual fails to properly delegate control responsibility for aircraft on Taxiway Quebec.

To address Mr. Sugent's concerns, we examined sections of DTW's air traffic control Operating Manual that pertain to directing traffic on Taxiway Quebec. His concerns and our findings follow:

(a) Unclear "hold-short" requirements for aircraft on Taxiway Quebec

Mr. Sugent reported that even though the DTW Operating Manual requires controllers to hold traffic on Taxiway Quebec short at 200 feet from either side of the Runway 4R extended centerline, the "hold-short" signs and painted lines are instead located 750 feet from either side of the extended centerline. Mr. Sugent further reported that both the 200 and 750-foot marks appear on the ASDE-X display on controller monitor screens in the Tower. Mr. Sugent contended that the lack of signage at the 200-foot mark on Taxiway Quebec itself, as well as both the 200 and 750-foot marks appearing on the ASDE-X, prevent controllers from complying with the Operating Manual's requirements concerning Taxiway Quebec.

We found that Taxiway Quebec has painted lines and adjacent signs demarcating a "hold-short" area 750 feet from either side of the extended centerline of Runway 4R. There are, however, no corresponding lines or signs for the 200-foot mark.

We determined that DTW management implemented DTW Notice 7110.134, effective February 1, 2007, which prescribed new procedures for the operation of Taxiway Quebec, requiring controllers to keep Taxiway Quebec clear of aircraft (or "held short") at 200 feet on either side of Runway 4R's extended centerline. The requirements provided in the Notice have been incorporated in Subchapter 5-7.b(11)

of the “ground control” chapter of DTW’s Operating Manual. This 200-foot “hold-short” requirement is separate from the 750-foot “hold-short” mark, established pursuant to a 1999 airspace study, which prohibits aircraft with a tail-height over 65 feet from taxiing through the runway approach area while aircraft depart from and arrive on Runway 4R.

In issuing DTW Notice 7110.134, and incorporating its language into the facility’s Operating Manual, DTW established the 200-foot wide “hold-short” area to ensure that aircraft using Taxiway Quebec do not obstruct the ability of inbound aircraft to observe landing lights on Runway 4R when they approach from the south. However, DTW cannot add corresponding signage or “hold-short” lines without the approval of the Airports Division, which is responsible for ensuring signage and markings on an airport surface meet national standards.

Despite our numerous conversations with ATCT and Airports Division Office personnel, it is unclear whether either, or both, the 200-foot or 750-foot “hold-short” requirements are in effect at DTW. We found that controller confusion has been heightened by the fact that both “hold-short” marks are displayed on controller monitor screens via ASDE-X.

(b) Use of the word “should” versus “shall” in the ground control chapter

We agree with Mr. Sugent’s recommendation that in the “ground control” chapter of DTW’s Operating Manual, the word “should” be replaced with “shall”, to be consistent with the word “required” in the first sentence of Subchapter 5-7.b(11) of the ground control chapter.

(c) Differences between the “ground control” and “local control” chapters

Mr. Sugent raised concern that some language from DTW Notice 7110.134, which contains restrictions for using Taxiway Quebec, was more comprehensively incorporated into the “ground control” chapter of the DTW Operating Manual than it was in the “local control” chapter of the Manual.

We determined that the disparity between wording contained in the “local control” chapter of the manual and that included in the “ground control” chapter is appropriate in light of the different responsibilities of the two positions.

(d) Area of control responsibility

According to Subchapter 5.7b(11) of the DTW Operating Manual, under certain visibility conditions, an aircraft that must “hold-short” on Taxiway Quebec while

another aircraft overflies the taxiway to arrive on Runway 4R, is the responsibility of ground control. Mr. Sugent contended, however, that the aircraft on Taxiway Quebec should either be the responsibility of local control, or that ground control should seek permission from local control before moving the aircraft through the Taxiway's hold-short area.

We found that aircraft on taxiways are typically the responsibility of ground control, and we did not identify any enhancement in safety or operational efficiency that would result from requiring DTW to assign local control the responsibility of controlling aircraft on Taxiway Quebec. Further, we found that DTW's Operating Manual is sufficiently clear that aircraft on Taxiway Quebec are the responsibility of ground control. Therefore, we did not substantiate this concern.

***Finding 4: Exceptions to segregation guidance for jet and propeller aircraft created confusion and constituted a potential safety issue until May 2008.***

Two FLMs and all ten controllers we interviewed concurred with Mr. Sugent's contention that the confusion created by numerous exceptions to segregation guidance constituted a potential safety issue. Mr. Sugent stated that, between approximately November 2007 and May 2008, controllers committed at least eight operational deviations,<sup>6</sup> which he believed could be attributed, at least in part, to the confusing nature of the separation guidance. Given the number of operational deviations that occurred, we concluded that prior to correction, this matter constituted a potential safety issue.

We found that some of these ten controllers had raised concerns about the confusing segregation guidance to DTW management several years earlier, before Mr. Figliuolo and Mr. Grammes assumed their current positions; however, management did not take action to address the segregation issue until January 2008. In January 2008, DTW management implemented a policy to change the color of the ink used on the flight strip<sup>7</sup> assigned to each flight within the ATCT. According to Mr. Sugent and other controllers, however, this measure did not fully resolve the problem, leading management to search for an alternate solution.

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<sup>6</sup> An "operational deviation" occurs when an aircraft in airspace controlled by one air traffic controller encroaches upon, or flies into, airspace assigned to another controller without proper coordination.

<sup>7</sup> The flight progress strip is a strip of paper, approximately 1" x 8" in size, on which relevant air traffic information is printed, such as an aircraft's call sign, type, altitude, and heading.

To clarify the matter and eliminate confusion, DTW management implemented trial corrective measures in May 2008 that simplified the segregation procedures and eliminated the numerous exceptions that controllers had previously found to be confusing. The measures were incorporated into a LOA between DTW's ATCT and TRACON on August 15, 2008. We reviewed these measures, concluding they are sufficient to resolve the concerns.

***Finding 5: In the absence of an electronic communication system, DTW controllers have adequate means to provide routing information to aircraft headed to Ohio airports.***

During interviews, Mr. Sugent expressed concern about the inability of controllers at DTW to use an electronic communication system when providing routing information to aircraft traveling to several airports in Ohio, subsequent to a regional airspace reconfiguration in June 2006. Pursuant to the reconfiguration, DTW was no longer able to electronically provide SID routes to aircraft traveling to certain airports in Ohio.

Specifically, the controller handling clearance delivery within the DTW ATCT typically sends the SID (which contains information such as vector, altitude, and departure frequency) via an electronic system that displays the SID on a screen in the outbound aircraft's cockpit.<sup>8</sup> Since the reconfiguration, however, SIDs have not been programmed for certain airports in Ohio. Consequently, the clearance delivery controller at DTW must instead verbally provide the information to the pilot, who then repeats the information back to the controller.

According to Mr. Sugent and several other controllers, this constitutes a safety issue because incorrect information could be provided by the controller or recorded by the pilot. Mr. Figliuolo, Mr. Grammes, and the FLMs disagreed, however, contending this is a workload issue rather than a safety issue.

We did not find evidence that this condition poses a safety issue, as we determined that if the electronic communication system fails, the standard, FAA-approved (system-wide) back-up procedure is for the clearance delivery controller to verbally provide the routing information to any departing aircraft, just as DTW now does for aircraft heading to the affected Ohio airports.

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<sup>8</sup> The specific SID provided to an aircraft depends on the runway from which it departs and its next destination. Among other things, the SID provides the aircraft with a safe route for departing the airport, as well as the waypoints to the air corridor in which it will travel.

Moreover, DTW staff recently developed a procedure to ensure all departing aircraft, including those traveling to the airports in Ohio at issue, receive SIDs utilizing the electronic communication system. This proposed procedure is currently under review with DTW management. (Mr. Sugent has reviewed and expressed his satisfaction with the proposed procedure.)

## Recommendations

The results of our investigation into Mr. Sugent's concerns show the need for FAA to take a number of corrective actions to assure that the safety of air traffic control operations at DTW is maintained. Such corrective actions include the need to improve management-controller communication, ensure future compliance with FAA safety Orders and other directives, and minimize the potential for safety risks at DTW. Accordingly, as formalized in an April 3, 2009, memorandum to FAA's Acting Administrator, we recommended the following to FAA:

1. (a) Before DTW considers reinstating operation of the Southwest Flow, it must consult with ATO's Office of Terminal Safety and Operations and AOV to develop detailed procedures for the safe operation of this configuration; (b) ATO conduct an audit into DTW's air traffic controller training program to ensure that controllers are provided with thorough, consistent, and uniform training regarding proper air traffic procedures pertaining to intersecting runways; and (c) consider appropriate administrative action for DTW Manager Joseph Figliuolo and DTW Operations Manager Kevin Grammes based on their failure to ensure that the Southwest Flow complied with FAA Order 7110.65 (regarding the safe operation of runways with intersecting flight paths), and their failure to ensure that controllers received adequate training and guidance.
2. (a) Consider appropriate administrative action for DTW Manager Joseph Figliuolo and former DTW Staff Manager Marcia Boliard for providing information for FAA's initial response to Senator Levin that was, at a minimum, disingenuous; and (b) the Acting Administrator apprise Senator Levin of the disposition of actions at DTW pursuant to Mr. Sugent's concerns and our findings and recommendations.
3. (a) Promptly determine the correct location for all "hold-short" lines on Taxiway Quebec and ensure that painted lines and lighted signs are situated correctly; (b) modify ASDE-X in accordance with the foregoing determinations; (c) properly train controllers on "hold-short" requirements; and (d) DTW, with the review and concurrence of ATO-Terminal's Office of Terminal Safety and Operations Support, revise Subchapter 5-7.b(11) of the ground control chapter of its Operating Manual by changing wording from "should" to "shall."



4. Require that AOV conduct a follow-up audit to ensure that DTW's corrective measures regarding segregation of outbound jet and propeller aircraft are still being properly trained and implemented, and are sufficient to remedy the safety concerns previously identified by AOV.

If I can answer any questions or be of further assistance, please contact me at (202) 366-1959, or David Dobbs, Deputy Inspector General, at (202) 366-6767.

Attachments

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OIG Investigation #I09Z00021SINV

TRACON Management at Detroit Wane County Metropolitan Airport

(DI-08-3138)

**ATTACHMENT 2**

**FAA Air Traffic Safety Oversight (AOV) Audit of Intersecting Runways and Nonintersecting Runways. (Note: This audit report included information related to several airports, including Detroit. Thus, the audit report was redacted to exclude information pertinent to airports other than Detroit.**



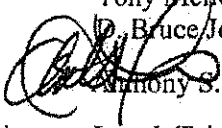
## Federal Aviation Administration

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### Memorandum

Date: OCT 1 2007

To: Tony Mello, Acting Vice President, Safety Services, AJS-0  
D. Bruce Johnson, Vice President, Terminal Services, AJT-0

From:  Anthony S. Ferrante, Director, Air Traffic Safety Oversight Service, AOV-1

Prepared by: Joseph Teixeira, Manager, Air Traffic Operations Oversight Division,  
Ext. 7-8169

Subject: Audit Report, Intersecting Runways and Nonintersecting Runways

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The Air Traffic Safety Oversight Service (AOV) conducted an audit of the Air Traffic Organization (ATO) to determine compliance with FAA orders and separation standards when utilizing intersecting runways or nonintersecting runways whose flight paths intersect.

AOV audited 5 of the 17 Operational Evolution Partnership (OEP) airports with intersecting runway/flight path operations. The audit team focused on three specific areas: operational, procedural, and training as it pertains to the requirements of intersecting and nonintersecting runways.

As a result of this audit, a specific safety compliance issue was identified. The following safety compliance issue will be resolved through the AOV Compliance Process in accordance with FAA Order 8000.86, Air Traffic Safety Oversight Compliance Process. This issue requires a formal response within 10 working days from receipt of this memorandum. The formal response should include a comprehensive plan on how ATO will address this issue.

(1) Compliance Issue Number COMP-FY07-07:

On August 14, 2007, the audit team found Detroit Airport Traffic Control Tower (DTW) to be noncompliant with FAA Order 7110.65, Air Traffic Control, Paragraph 3-9-8 and (b), which requires to separate a departing aircraft from an aircraft using an intersecting runway or nonintersecting runways when the flight paths intersect, by ensuring that the arrival 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. This issue was briefed to the facility during the audit and reported to ATO Safety on August 29, 2007.

Specifically at DTW, the audit team observed that aircraft A was departing one runway while aircraft B was crossing the landing threshold of a nonintersecting runway that crossed aircraft

A's flight path. No control instructions were given to aircraft B (the landing aircraft) to ensure separation from aircraft A. It is important to note that DTW does not use Land and Hold Short procedures. Also the audit team reviewed local directive DTW 7110.9A, dated 6/8/06, paragraph 6-9, which addresses runways 27L and 21R operation and found that it does not clearly state that this operation must be used dependently, nor does it give specific instructions for rejected landings.

The following audit findings have been identified and noted in the audit report. These findings will be tracked and resolved through the AOV Audit Process, and require a response from ATO by November 13, 2007.

#### Focus Area 2: Procedure

- (1) Fifty percent of those facilities that utilize Land and Hold Short Operations (LAHSO) did not meet the full requirements of FAA Order 7110.118, Land and Hold Short Operations. The noncompliant facilities did not have a letter of agreement with the user signatories nor did they have a list readily available to controllers.

#### Focus Area 3: Training

- (1) Forty percent of the audit facilities' did not indicate specific briefing items were done verbally as required by FAA Order 7210.3, Facility Operation and Administration. The noncompliant facilities produced an electronic mail from their service unit providing an interpretation, that is in contradicts to FAA Order 7210.3 Paragraph 2--2--11 which states in part that "shall ensure that facility air traffic personnel are verbally briefed on changes". The interpretation explained that only major changes to the orders needed to be verbally briefed. The interpretation went on to clarify that any notice changes, disseminated as General Notices (GENOTS), as well as other changes to procedural directives did not have to be verbally briefed.

cc: Director, Safety Investigations and Evaluations, AJS-3  
Director, Special Projects, AJS-8



*AIR TRAFFIC SAFETY OVERSIGHT SERVICE*

**Audit Report**

**Audit of Intersecting Runways and  
Nonintersecting Runways**

*FEDERAL AVIATION ADMINISTRATION*

*AIR TRAFFIC ORGANIZATION*

**ADT-FY-07-010**

**August 13-29, 2007**

Approval: \_\_\_\_\_

Director, Air Traffic Safety Oversight Service, AOV-1

Date: \_\_\_\_\_

9/28/07

## EXECUTIVE SUMMARY

At the request of the Administrator, the Air Traffic Safety Oversight Service (AOV) conducted a comprehensive audit of Operational Evolution Partnership (OEP) airports with intersecting runway/flight path operations.

AOV conducted an audit that began August 13, 2007, and ended August 29, 2007. The objective of the audit was to determine Air Traffic Organization's (ATO) compliance with FAA orders and separation standards when utilizing intersecting runways or nonintersecting runways whose flight paths intersect. The audit team identified 17 of the 35 OEP airports utilized this type of operation. From the 17 identified airports, the following Airport Traffic Control Towers (ATCT) were used as a representative sample for this audit: Detroit (DTW), [REDACTED]

During the audit, the AOV audit team used standard auditing techniques and developed specific audit checklists, and they performed operational observations and interviewed ATO management personnel. The audit team focused on three specific areas.

- **Focus Area 1: Operation**  
Includes: Intersecting Runway/Flight Path Separation (arrivals and departures), Wake Turbulence Separation, and Visual Separation procedures while conducting approaches to Intersecting Runways/Flight Paths.
- **Focus Area 2: Procedure**  
Includes: Land and Hold Short Operations (LAHSO)
- **Focus Area 3: Training**

The audit team found the following:

Twenty percent of the audited facilities were found to be noncompliant with FAA Order 7110.65, Air Traffic Control, Paragraph 3-9-8 a and b. Specifically, the audit team observed aircraft were taking off from one runway while other aircraft were crossing the landing threshold of a nonintersecting runway whose flight path crossed the departure's runway. There were no control instructions given to the landing aircraft to ensure they would hold short of, turn clear of, or cross through the intersection of the rolling departure.

Forty percent of the facilities audited use Land and Hold Short Operations (LAHSO). Fifty percent of those facilities that utilize LAHSO did not meet the full requirements of FAA Order 7110.118, Land and Hold Short Operations. The specific requirement found in noncompliance was subparagraph 11(a)(5) that requires a Letter of Agreement be signed by those parties specified in subparagraph 13(b)(1). The subparagraph identifies the airport user representatives as one of the parties. In addition to the above, subparagraph 13.b4 requires that a list of Federal Aviation Regulations (FAR) parts 121, 125, 129 and 135 operators, authorized to participate in LAHSO at the airport be readily available for controllers' reference prior to operational use of LAHSO procedures. The noncompliant facilities did not have a letter of agreement with the user signatories nor did they have a list readily available to controllers.

One hundred percent of the audited facilities presented the auditors with Read and Initial (R & I) forms to verify their operational personnel were briefed on changes and notices pertaining to intersecting runway/flight path operations. However, forty percent of the audited facilities' R & I forms did not indicate that the briefings were done verbally as required by FAA Order 7210.3. It was noted that one of the noncompliant facilities produced an electronic mail from their service unit that provided an interpretation, which is in contradiction to FAA Order 7210.3 paragraph 2-2-11 that states "shall ensure that facility air traffic personnel are verbally briefed on changes". The interpretation explained that only major changes to the orders needed to be verbally briefed. The interpretation went on to clarify that any notice changes, disseminated as General Notices (GENOTS), as well as other changes to procedural directives did not have to be verbally briefed.

Additionally, the following observations were made:



## I. INTRODUCTION

### Background

From 2006 to 2007, The Air Traffic Safety Oversight Service (AOV) identified seven incidents involving intersecting runways or nonintersecting runways whose flight paths intersect. As a result of these incidents, AOV issued a Letter of Investigation to the Air Traffic Organization (ATO) regarding [REDACTED]

### Methodology

AOV used standard auditing techniques and developed specific audit checklists for this audit. The AOV audit team performed operational observations and interviewed ATO management personnel during the audit. The audit team focused on three different areas. Those areas were:

- **Focus Area 1: Operation**  
Includes: Intersecting Runway/Flight Path Separation (arrivals and departures), Wake Turbulence Separation, Visual Separation procedures while conducting approaches to Intersecting Runways/Flight Paths, and Simultaneous Converging Instrument Approaches (SCIA).
- **Focus Area 2: Procedure**  
Includes: Land and Hold Short Operations (LAHSO)
- **Focus Area 3: Training**

### Scope and Objective

The Air Traffic Safety Oversight Service (AOV) conducted an audit to determine the Air Traffic Organization's (ATO) compliance with FAA orders and separation standards when utilizing intersecting runways or nonintersecting runways whose flight paths intersect.

The on-site portion of the audit was conducted at the following facilities:

Audit Dates:

Audit Locations:

August 13-14

Detroit ATCT (DTW)



The audit team verified ATO's compliance with requirements in the following Federal Aviation Administration (FAA) orders:

- FAA Order 7110.65, Air Traffic Control
  - Paragraph 3-9-8, Intersecting Runway Separation
  - Paragraph 3-10-4, Intersecting Runway Separation
  - Change 3, paragraph 3-10-4, Intersecting Runway Separation
  - Chapter 7 section 2, Visual Separation
- FAA Order 3120.4, Air Traffic Technical Training
  - Paragraph 2-12, Proficiency Training and Supplemental Training
- FAA Order 7210.3, Facility Operations and Administration
  - Paragraph 2-2-11, Personnel Briefings Regarding Order Changes
- FAA Order 7110.98, Simultaneous Converging Instrument Approaches (SCIA)
- FAA Order 7110.118, Land and Hold Short Operations (LAHSO)

## II. AUDIT RESULTS

This section summarizes the main findings of the audit. It addresses those findings of noncompliance that require a response from the ATO and provides a summary of the audit results.

### Focus Area 1: Operation

#### a. Description

The audit team concentrated on two types of runway configurations: intersecting runways and nonintersecting runways with intersecting flight paths. The separation requirements as stated in FAA Order 7110.65 are the same for both configurations. The requirement does not allow an intersecting operation until air traffic control can assure that only one aircraft will be at the intersection at a time. This assurance can be obtained by having an aircraft hold short of the intersection, turn off the runway prior to the intersection, or cross through and clear the intersection before the other aircraft commences its operation.

Facilities utilizing intersecting runways/flight paths, in addition to standard separation rules, are required to comply with the requirements of FAA Order 7110.65 for wake turbulence separation.

Aircraft may be separated by visual means, as provided in FAA Order 7110.65, Chapter 7 Section 2, when other approved separation is assured before and after the application of visual separation.

Facilities meeting the requirements contained in FAA Order 7110.98, Simultaneous Converging Instrument Approaches (SCIA), may operate converging approaches when weather conditions preclude visual approaches.

**b. Methodology**

An interview with facility Air Traffic Management identified the existence and location of written procedures for the audited subjects. The audit team reviewed Standard Operation Procedure (SOP) directives as well as local facility orders and notices. The audit team then verified application of those procedures by observing tower operations.

**c. Requirements**

- FAA Order 7110.65, Air Traffic Control

3-9-8 INTERSECTING RUNWAY SEPARATION

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:

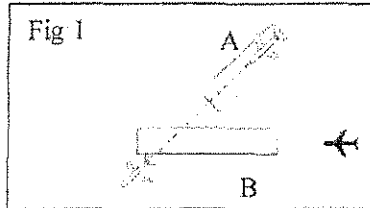
- a. The preceding aircraft has departed and passed the intersection, has crossed the departure runway, or is turning to avert any conflict.
- b. A preceding arriving aircraft is clear of the landing runway, completed the landing roll and will hold short of the intersection, passed the intersection, or has crossed over the departure runway.

Additional requirements:

- FAA Order 7110.65, Air Traffic Control:
  - Paragraph 3-9-8, c, d and e
  - Paragraph 3-10-4, c and d
  - Chapter 7, section 2 paragraph 7-2-1, 2 and 3 e.
- FAA Order 7110.98, Simultaneous Converging Instrument Approaches (SCIA):
  - Paragraph 8 c and d(3)
  - Paragraph 8 f(1,2,3 and 4)
  - Paragraph 9
  - Paragraph 10

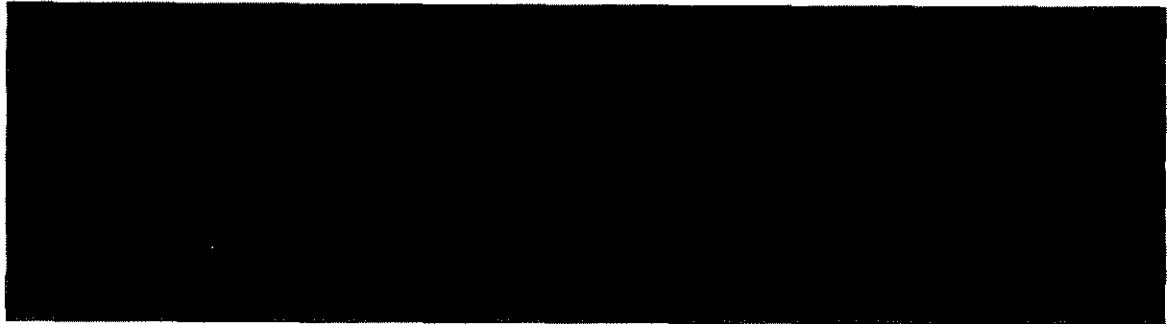
**d. Findings**

- (1) The audit team found twenty percent (1 out of 5) of the audited facilities in noncompliance with FAA Order 7110.65, Air Traffic Control, paragraph 3-9-8, Intersecting Runway Separation requirement. Specifically, the audit team



observed at one facility that aircraft A was departing one runway while aircraft B was crossing the landing threshold of a nonintersecting runway that crossed aircraft A's flight path. No control instructions were given to aircraft B (the landing aircraft) to ensure that it would hold short of, turn clear of, or cross through the intersection of aircraft A's (the departing aircraft's) flight path. (See Fig 1). This scenario was observed with three sets of aircraft.

**e. Observations**



**Focus Area 2: Procedural**

**a. Description**

Land and Hold Short Operations (LAHSO) may be used for separating aircraft operating on intersecting runways/flight paths. LAHSO procedures allow aircraft to land with a restriction to hold short of the intersecting runway/flight path used by another aircraft. The audit team focused on the facility's use of LAHSO, the creation of a local LAHSO directive and training in the use these procedures.

**b. Methodology**

The audit team verified with the air traffic management that the facility uses LAHSO. For those facilities that use LAHSO the audit team reviewed the locally written directives. In addition, the audit team reviewed FAA Form 3210-1 to verify compliance with the training requirements. The team also visually observed the operation in the tower.

**c. Requirements**

- FAA Order 7110.65 Air Traffic Procedures Paragraph 3-10-4, b
  - b. USA/USAF/USN NOT APPLICABLE." An aircraft may be authorized to takeoff from one runway while another aircraft lands simultaneously on an intersecting runway or an aircraft lands on one runway while another aircraft lands simultaneously on an intersecting runway, or an aircraft lands to hold short of an intersecting taxiway or some other predetermined point such as an approach/departure flight path using procedures specified in the current LAHSO directive. The procedure shall be approved by the air traffic manager and be in accordance with a facility directive.
- Additional requirements were found in FAA Order 7110.118, Land and Hold Short Operations

**d. Findings**

- (1) LAHSO is utilized at 2 of the 5 audited facilities; and of which one facility did not meet the full requirements of FAA Order 7110.118, Land and Hold Short Operations. The specific requirement found in noncompliance was subparagraph 11(a)(5) that requires a Letter of Agreement be signed by those parties specified in subparagraph 13b1. The subparagraph identifies airport user representatives as one of the parties. In addition to the above, subparagraph 13 b4 requires a list of FAR parts 121, 125, 129 and 135 operators authorized to participate in LAHSO at the airport. This list shall be readily available for controllers' use prior to operational use of LAHSO. The noncompliant facilities did not have a letter of agreement with the user signatories nor did they have a list available to controllers.

**e. Observations**

No observations in this area

**Focus Area 3: Training**

**a. Description**

Changes to FAA Order 7110.65, FAA Order 7210.3 and other procedural orders affecting the operations of a system are generated through GENOTS, notices, memorandums and change orders. Those changes, as mandated by FAA Order 7210.3 and FAA Order 3120.4, require each operational person to receive a verbal briefing on the subject matter prior to assuming an operational position. The audit team reviewed changes that were pertinent to the intersecting runway/flight path operation and verified compliance with the above cited references.

**b. Methodology**

The audit team verified, with facility management, that training on each notice had been accomplished. In addition, the audit team reviewed FAA Form 3120.1 to verify compliance with the training requirements.

**c. Requirements**

- FAA Order 3120.4 Air Traffic Technical Training Paragraph 2-12 (3) and paragraph c

2-12. PROFICIENCY TRAINING (Refresher, Supplemental, Skill Enhancement, Remedial).

(3) All proficiency training shall be documented in the employee's FAA Form 3120-1.

- c. Supplemental Training. Operational personnel shall complete supplemental training prior to the utilization of new/revised procedures, regulations, or equipment.

- FAA Order 7210.3 Facility Operation And Administration Paragraph 2-2-11

2-2-11. PERSONNEL BRIEFINGS REGARDING ORDER CHANGES

Air traffic managers shall ensure that facility air traffic personnel are verbally briefed on changes to FAA Order 7110.65, Air Traffic Control, FAA Order 7210.3, Facility Operation and Administration, and FAA Order 7110.10, Flight Services, and other appropriate directives, that have operational/procedural significance.

- The Following Changes to orders and Notices were reviewed:

- FAA Order 7110.65 Air Traffic Control Change 3
- FAA Order 7210.3 Facility Operation And Administration Change 3
- Notice N JO7110.456 Taxi into Position and Hold
- Notice N JO7110.465 Definition of "Directly Behind"
- Notice N JO7110.473 Takeoff Clearance
- FAA Order 3120.4 Air Traffic Technical Training

**d. Findings**

- (1) All audited facilities presented the auditors with Read and Initial (R & I) forms to verify operational personnel were briefed on the above listed items. However, two of the audited facility's R & I forms did not indicate whether the briefings were done verbally as required by FAA Order 7210.3. It was noted that one of the noncompliant facilities produced an electronic mail from their service unit that provided an interpretation, which is in contradiction to FAA Order 7210.3 paragraph 2-2-11 that states "shall ensure that facility air traffic personnel are

verbally briefed on changes". The interpretation explained that only major changes to the orders needed to be verbally briefed. The interpretation went on to clarify that any notice changes, disseminated as General Notices (GENOTS), as well as other changes to procedural directives did not have to be verbally briefed.

**e. Observations**

No observations in this area.

**APPENDIX A:**

**Audit Team Members:**

Ken Hartenstine	Team Leader
Joe Mantello	Team Member
Felicia McIntyre	Team Member
Cassandra James	Team Member
Joshua Armstrong	Team Member
Robin Holmes	Team Member
Danielle Adams	Team Member

**APPENDIX B:**

Audit Requirements Checklist – see attachment

OIG Investigation #I09Z00021SINV

TRACON Management at Detroit Wane County Metropolitan Airport

(DI-08-3138)

**ATTACHMENT 3**

**AOV memorandum related to the March 24, 2008, unscheduled follow-up audit of Detroit's Air Traffic Control Tower Southwest Flow Configuration.**






## Federal Aviation Administration

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### Memorandum

Date: APR 7 2008

To: Tony Mello, Acting Vice President, Safety Services, AJS-0  
D. Bruce Johnson, Vice President, Terminal Services, AJT-0

From:  Anthony Ferrante, Director, Air Traffic Safety Oversight Service, AOV-1

Prepared by: Joseph Teixeira, Manager, Air Traffic Operations Oversight Division, AOV-100,  
Ext. 7-8169

Subject: Follow-up to Letter of Investigation, Safety Compliance Issue, COMP-FY07-07,  
Detroit Air Traffic Control Tower Southwest Flow Configuration

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The Air Traffic Safety Oversight Service (AOV) conducted an audit on August 13-29, 2007, to determine Air Traffic Organization (ATO) compliance with the separation requirements for intersecting runways or non intersecting runways whose flight paths intersect.

The audit team found the Detroit Tower Air Traffic Control Tower (DTW) noncompliant (southwest flow configuration – arriving runway 27L while departing runway 21R) with FAA Order 7110.65 *Air Traffic Control*, paragraph 3-9-8, which requires air traffic control to separate a departing aircraft from an aircraft using an intersecting runway or nonintersecting runway when the flight paths intersect, by ensuring 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.

On October 1, 2007, AOV issued a Letter of Investigation (LOI) on safety compliance issue COMP-FY07-07, which identified the procedures used during DTW the southwest flow configuration as noncompliant with FAA Order 7110.65, paragraph 3-9-8.

In response to our LOI, ATO Safety Services conducted an independent investigation at DTW on October 15-17, 2007. On October 24, 2007, ATO suspended the operations at DTW for the southwest flow configuration. On November 21, 2007, ATO issued Notice DTW N7110.151, which established “dependant” procedures for arriving runway 27L, while departing runway 21R. The Notice also addressed the “independent” procedures for arriving runway 27L while departing runway 22L. AOV was informed that all personnel at DTW were briefed on the change in procedures. On January 25, 2008, DTW issued revised Notice, DTW N 7110.152 that added missed approach and go-around requirements. AOV was again informed that all personnel at DTW were briefed on the change in procedures.

On March 24, 2008, AOV conducted an unscheduled follow-up audit at DTW to determine compliance with findings from the audit conducted on August 13-29, 2007. The audit team conducted interviews with management personnel, as well as reviewed training documentation on the changes to procedures for the southwest flow configuration.

The audit team found the following issues:

- 1.) The audit team found no objective evidence that all DTW personnel received training on the changes to procedures for the southwest flow configuration.
- 2.) Although DTW management personnel assured AOV the southwest flow configuration would be suspended until procedures were developed and DTW personnel appropriately trained, the audit team found evidence that the operation was still being conducted. The audit team was informed that the DTW Air Traffic Manager permitted Front Line Managers to resume the operation when operational necessity warranted. The audit team obtained a memorandum from the operations manager to all DTW personnel, dated November 7, 2007, informing them of such. The audit team found 2 occasions when DTW personnel were operating the southwest flow configuration. On October 17, 2007, operational error (DTW-T-07E-003) occurred while on the configuration. On December 16, 2007, the southwest flow configuration was in operation during portions of the day. This was documented in a memorandum, dated January 24, 2007, in response to an Administrator's Hotline Inquiry regarding the operation.
- 3.) Interviews with DTW management revealed inconsistencies in the proper application of FAA Order 7110.65, paragraph 3-9-8.

The ATO has informed AOV that contractor support has recently been retained to ensure training is conducted for all DTW personnel on the applicable requirements and procedures associated with DTW N 7110.152. ATO has assured AOV that this action will provide standardization and consistency to the training.

AOV requests the ATO forward all training material, including but not limited to, the training plan, training timelines, and briefing packages developed that will be used to train DTW personnel. Additionally, AOV requests written notification and objective evidence when the training is completed for all DTW personnel.

Please respond within 10 working days from receipt of this memorandum on the current status of the DTW operation and scheduled training dates.

cc: Hank Krakowski, Chief Operating Officer  
Director, Safety Investigations and Evaluations, AJS-3  
Director, Special Projects, AJS-8

OIG Investigation #I09Z00021SINV

TRACON Management at Detroit Wane County Metropolitan Airport

(DI-08-3138)

**ATTACHMENT 4**

**Safety Investigations and Evaluations memorandum dated October 19, 2007, responding to AOV's Letter of Investigation. On-site investigation conducted October 15 - 17, 2007.**



## Federal Aviation Administration

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### Memorandum

Date: October 22, 2007

To: Tony Ferrante, Director, Air Traffic Safety Oversight Service

From: *T. Mello*  
Tony Mello, Acting Vice President, Safety Services

Prepared by: Jim Fossey, Director, Safety Services Special Projects

Subject: Response to Audit of Intersecting Runways and Nonintersecting Runways,  
Detroit Metropolitan Wayne County Airport (DTW) Safety Findings  
Ref: AOV audit report, dated Oct. 1, 2007

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Safety Services forwards the Final Report from our investigative team that was sent to Detroit Metropolitan Wayne County Airport (DTW) in response to your recent Audit Report regarding Intersecting Runways and Nonintersecting Runways. Because our findings tend to confirm the earlier findings from your audit team, we are seeking a timely review of the operations at DTW, and appropriate changes to the operations when DTW is using the Southwest flow from Runways 21R and 27L.

We have requested that Terminal Services respond to your Audit Report, and the recommendations contained in our investigative report. Briefings to the COO and the Vice President of Terminal Services were conducted on Oct. 19, 2007 regarding this matter. We will forward any operational changes, training accomplishments, and other safety mitigations to your office as we become aware of them.

Because of the workload and background of this matter, the investigative team was led by Special Projects. Please contact Jim Fossey if you have further questions regarding this matter.

Atch: Safety Services final report from recent site visit; dated Oct. 19, 2007

cc: Vice President, Terminal Services  
Director, Terminal Services Safety & Operations Support



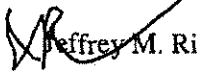
## Federal Aviation Administration

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### Memorandum

Date: October 19, 2007

To: James Bedow, Acting Director, Safety Investigations and Evaluations

From:  Jeffrey M. Rich, Safety Investigations

Prepared by: Peter Trapp, Safety Services Staff

Subject: Final Report, Intersecting Runways and Nonintersecting Runways,  
Detroit Metropolitan Wayne County Airport Traffic Control Tower (DTW)

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#### Background.

On October 1, 2007, Air Traffic Organization office of Safety Services (ATO-S) received a Letter of Investigation (LOI) from the Air Traffic Safety Oversight Service (AOV) regarding issues identified during a compliance audit of FAA orders and separation standards when utilizing intersecting runways or nonintersecting runways whose flight paths intersect (FAA Order 7110.65, paragraph 3-9-8b.). Specifically, the LOI stated that DTW Air Traffic Control Tower (ATCT) was noncompliant with the referenced paragraph when utilizing Runways 27L and 21R. Runways 27L and 21R do not intersect, but the flight paths of aircraft utilizing these runways intersect. The audit found that an aircraft departed Runway 21R while another aircraft was crossing the landing threshold of Runway 27L, and that no control instructions were given to the landing aircraft to ensure separation from the Runway 21R departure. The audit also stated that DTW ATCT does not utilize Land and Hold Short (LAHSO) procedures. The AOV audit team also reviewed local directive DTW 7110.9A, Detroit Metro Tower Standard Operating Procedures, which addresses the Runways 21R/27L operation, and found that it does not clearly state that this operation must be used dependently, nor does it provide specific instructions for balked landings.

#### Summary.

An investigation was conducted at DTW ATCT on October 15-17, 2007 as a result of issues identified in a LOI from AOV. The investigation was conducted by a team from ATO-S led by Jeffrey Rich, and included Brenda Stallard and Michael McFadyen. The team reviewed documentation related to the issue, conducted interviews, reviewed automated replay data National Offload Program (NOP) Continuous Data Recording (CDR) and observed the operation from the tower cab. Terminal Services (ATO-T) and AOV were invited to participate and monitor this investigation, respectfully. Neither office was able to send representatives.

Facility personnel provided an in briefing to the team regarding the current operation at DTW. Runway 21L is closed for construction, and will reopen on or about November 21, 2007.

Facility personnel indicated that when Runway 21L reopens, the facility will return to a configuration which utilizes Runways 21R and 22L for departures, and Runways 21L and 22R for arrivals. The facility confirmed that the Runway 21R departure/Runway 27L configuration could be utilized when weather conditions favor the operation, but the facility is restricted to using this configuration no more than 6% of the time as written in the environmental Record of Decision.

The team reviewed order DTW 7110.9A, Detroit Metro Tower Standard Operating Procedures, paragraph 6-9, Runways 21R/27L Operations, and found that it did not provide explicit guidance for the issuance of instructions for aircraft on a missed approach. The paragraph provided basic weather minima and local operational requirements for conducting the operation, but did not provide guidance that would be more restrictive than that in FAA Order 7110.65. The team noted that compliance with FAA Order 7110.65 paragraph 3-9-8 dictates that the operation is conducted as a dependent operation.

The facility requirements for this runway configuration are: "Tower visibility of 4 miles or greater, ceiling of 2000 (feet) or greater." The revised weather minimums ensure that visual separation can be provided in-lieu of radar separation for arrivals and departures. A review of the order also revealed a discrepancy between a pen-and-ink change of the ceiling requirement and notice DTW N7110.139, which revised the weather minima required to conduct the operation. The facility manager was briefed on this discrepancy on October 16, 2007.

### Observations.

The team observed tower cab operations on October 15, 2007 from 1815-2015 Coordinated Universal Time (UTC) while the airport was in the Runway 21R/27L configuration. The following positions were in use at the time of the observation: Local Control Northwest (combined with Local Control Southwest); Local Control Northeast (combined with Local Control Southeast); Ground Control northeast (combined with Ground Control Southeast); Ground Control Northwest; Ground Control Southwest; Flight Data; Clearance Delivery; Traffic Management Coordinator; and the Front Line Manager (FLM) position.

Traffic for Runways 21R and 27L were controlled by one controller (Local Control Northeast position) as required by paragraph 6-9a.(1) of order DTW 7110.9A, Detroit Metro Tower Standard Operating Procedures. Weather minima at the time of the operation exceeded the minima required by order DTW 7110.9A paragraph 6-9a.(2).

Arrivals to Runway 27L were spaced approximately 4-5 miles in trail and departures from Runway 21R were sequenced between the Runway 27L arrivals. The team observed that the controllers appropriately and correctly applied the separation standards required by FAA Order 7110.65, paragraph 3-9-8(b).

The team continued monitoring the operation from 1625-1725 UTC on October 16, 2007, and observed noncompliance with 7110.65 paragraph 3-9-8. Specifically, some aircraft departing Runway 21R were issued a take-off clearance while arrival aircraft to Runway 27L were completing the landing roll. The arrival aircraft, after landing and decelerating, were not clear of the landing runway, were not instructed to hold short of any intersection, and had not passed the

flightpath intersection. It was apparent to ATO-S personnel that the local controller withheld takeoff clearance to the Runway 21R departure until the Runway 27L arrival had completed its landing and was decelerating on the runway, thus ensuring that the arrival aircraft had not executed a balked landing.

ATO-S personnel noted that the distance from the departure end of Runway 21R to the centerline of Runway 27L is approximately 3700 feet; the distance to parallel taxiway T is 3000 feet; and the distance to parallel taxiway J is 2600 feet. Aircraft operating on Runway 27L remain clear of the Runway 21R safety area (RSA) and the obstacle free zone (OFZ). ATO-S personnel noted that while it is not permissible to depart an aircraft on Runway 21R until the arrival aircraft to Runway 27L has landed, decelerated, and is at taxi speed, it is permissible for an aircraft to depart Runway 21R while aircraft are taxiing on Taxiway T or J (parallel and closer to the departing aircraft).

The facility was briefed on the noncompliance issue on October 16, 2007. During the briefing, the facility indicated that strict compliance with paragraph 3-9-8 would result in a reduced arrival and departure rate as operational personnel modified their control actions. Discussions with facility management, ATO-S investigators and the Director of Special Projects, AJS-8, revealed that the technical non-compliance with the paragraph presented no more of an operational safety risk than that of an aircraft departing Runway 21R while an aircraft was taxiing on inner parallel taxiways T or J; thus, the facility was not instructed to modify the operation. ATO-S investigators believe that requiring the facility to maintain strict compliance with the paragraph 3-9-8 would not provide any added safety benefit so long as the arrival aircraft has fully landed and begun to transition to taxi.

ATO-S personnel continued to monitor the operation on October 17, 2007 from 1750-1900 UTC. During this monitor time, it was observed that the Local Control Northeast controller did not comply with paragraph 3-9-8. The controller was observed issuing takeoff clearances to aircraft departing Runway 21R while aircraft were on short final, landing or completing the landing roll out on Runway 27L. During the monitor session, the controller was relieved at approximately 1830 UTC. The relieving controller, after receiving a relief briefing, was also observed to issue takeoff clearances while aircraft were arriving Runway 27L in the same manner as the previous controller. The FLM on duty in the tower cab was seated in the tower cab, was not monitoring the operation, and did not intervene in the operation.

The acting facility manager was briefed on the ATO-S observations of the operation at approximately 1845 UTC. The acting manager contacted the FLM in the tower and gave clear direction to have the Local Controller "hit the gap," meaning the Runway 21R departures would be sequenced between the Runway 27L arrivals. The FLM was also instructed to monitor the Runway 21R/27L operation very closely. The acting manager and ATO-S personnel then attempted to review Airport Movement Area Safety System (AMASS) data to confirm the observations, but Technical Operations personnel were unable to replay the data because of an automation issue. Technical Operations personnel stated that the data would be available to review on October 18, 2007.

ATO-S personnel and the acting manager reviewed NOP CDR data to validate the ATO-S observations. The replay did not depict a definitive loss of separation because of radar

limitations, but the replay provided enough information to warrant an investigation using AMASS data. The acting manager stated that the data review would take place on October 18, 2007 and that any reportable incidents would be properly investigated.

The acting manager contacted the Terminal Radar Approach Control (TRACON) Operations Manager (OM) at approximately 2000 UTC and explained the issue regarding the departures on Runway 21R. The acting manager then instructed the TRACON OM to increase the spacing on the Runway 27L final approach course from four to five miles to allow the Local Control Northeast controller more spacing for Runway 21R departures. The acting manager then contacted the FLM and emphasized that the operation was to be conducted in strict accordance with paragraph 3-9-8.

### **Actions Taken.**

The facility was briefed by the AOV audit team during the week of August 14, 2007 regarding potential compliance issues with FAA Order 7110.65 paragraph 3-9-8. In response to the AOV finding, the facility developed a verbal briefing package on August 21, 2007 for all personnel regarding the affected operation and related separation standards; the briefings were completed by September 1, 2007.

The verbal briefing to all operational personnel covered the following areas:

1. The Runways 21R/27L operation is a dependent operation
2. FAA Order 7110.65, paragraphs 3-9-8 and 3-10-4 requirements
3. Weather minima required for the operation
4. Visual separation is the responsibility of the local controller until radar separation can be applied between a departure aircraft and an aircraft on a balked landing
5. Considerations regarding initial headings assigned to a Runway 27L missed approach
6. A "go or no-go" point to consider when issuing a take-off clearance for a Runway 21R departure when traffic is on final approach for Runway 27L.

The facility is in the process revising order DTW 7710.9A, paragraph 6-9 and 6-10. The proposed changes include language that provide more explicit guidance and information regarding the Runway 21R/27L operation and balked landings on Runway 27L. The revision also indicates that the operation is dependent. The facility offered to forward the changes to ATO-S after consulting with tower personnel.

### **Conclusions:**

Several operational personnel were observed to conduct operations to Runway 21R/27L contrary to the requirements of FAA Order 7110.65 paragraph 3-9-8.



At least one FLM did not intervene in the operation when the incorrect application of the requirements of paragraph 3-9-8 was observed.

A portion of the operational personnel, including FLM's, do not have an accurate understanding of the appropriate application of FAA Order 7110.65 paragraph 3-9-8.

The facility briefing that took place after the AOV audit was a verbal face-to-face briefing did not include copies of paragraph 3-9-8 or paragraph 6-9 of Order DTW 7110.9A, which potentially contributed to the non-standardized operation of the Runways 21R/27L operation.

**Recommendations:**

The DTW Operations Manager and FLM's review the correct application of paragraph 3-9-8 and the requirements of DTW SOP paragraph 6-9 including copies of the specific paragraphs for all operational personnel to review within 14 days.

When necessary, DTW TRACON should provide appropriate spacing to Runway 27L arrivals to allow the proper application of paragraph 3-9-8 effective immediately.

ATO-S conducts a follow-up review and monitors the operations at DTW during the next 30 days.

ATO-T revises FAA Order 7110.65, paragraphs 3-9-8 and 3-10-4, to permit the issuance of a takeoff clearance to a departure aircraft after ensuring that an arrival to a non-intersecting runway has not executed a balked landing.

Atch: DTW airfield diagram

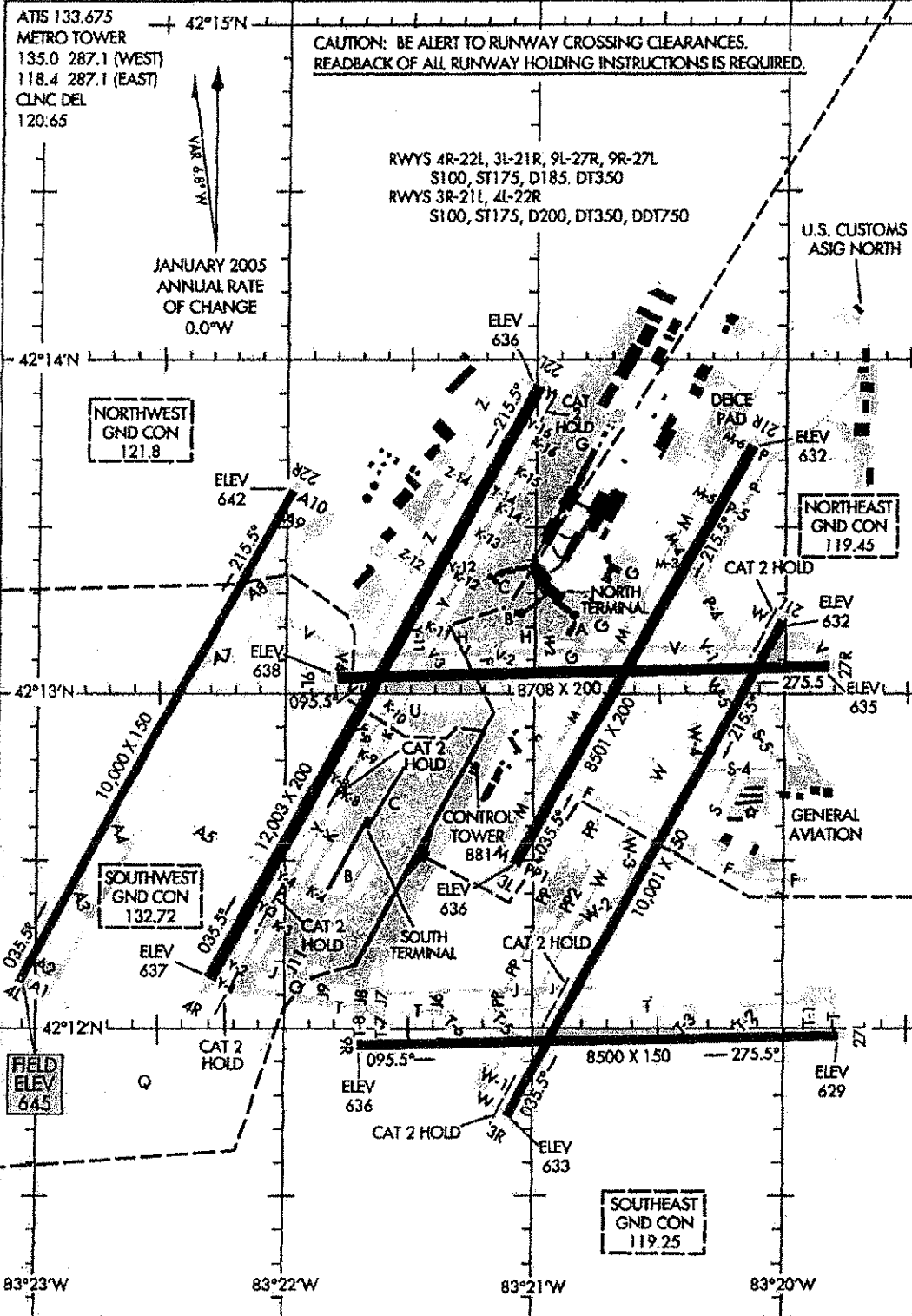
DTW 7110.9A standard operating procedures (paragraphs 6-9 & 6-10 only)

DTW N7110.139 change to standard operating procedures for Runway 21R/27L

07186

# AIRPORT DIAGRAM

DETROIT METROPOLITAN WAYNE COUNTY (D'TW)  
AL-119 (FAA) DETROIT, MICHIGAN



EC-1, 27 SEP 2007 to 25 OCT 2007

EC-1, 27 SEP 2007 to 25 OCT 2007

# AIRPORT DIAGRAM

DETROIT, MICHIGAN  
DETROIT METROPOLITAN WAYNE COUNTY (D'TW)

07186

b. For authorization to cross an active runway, state the word "CROSS" followed by the designator and the intersection /point of crossing.

c. Red strips containing each runway designator shall be used as "memory joggers" for active runway crossings as follows:

(1) When approval is given for Ground Control to cross or enter an active runway, place the red strip of the runway relinquished in the active column of the Local Control podium.

(2) Remove the red strip from the active column when Ground Control reports clear of the runway.

#### 6-6. UTILIZING A RUNWAY NOT DESIGNATED AS ACTIVE

a. Coordinate with all Ground Controllers and the other Local Controller, prior to landing/departing on a runway not designated as active.

b. Advise all affected positions when an operation on a runway not designated as active is complete.

#### 6-7. MEMORY JOGGERS

a. The following memory joggers are used at DTW Tower and shall be placed on the controllers podium for the denoted purpose:

(1) RED- denotes runway crossings.

(2) ORANGE- denotes runway closures.

(3) YELLOW- denotes a departure release.

(4) GREEN- denotes assignment of departure airspace.

(5) BLUE- denotes "Taxi Into Position and Hold" (TIPH) clearance.

#### 6-8. REDUCED SEPARATION ON FINAL

Reduced separation on final is authorized, per FAAO 7110.65 par. 5-5-4g, for runways 21L, 3R and 22L only.

#### 6-9. RUNWAY'S 21R/27L OPERATIONS

a. Procedures for departing Runway 21R, Arriving Runway 27L are:

(1) Traffic for RY's 21R and 27L shall be worked by one controller at either LNE or LSE position, and on one frequency.

(2) The following weather criteria shall exist:

(a) Wind Parameters – Wind direction shall be from 190 degrees clockwise to 350 degrees or a wind component of less than 5 knots.

(b) Minimums – Visibility of 4 miles or greater, ceilings of 3000 or greater.

(3) The local controller should consider aircraft performance and characteristics, when a potential conflict exists with RY 27L arrivals executing a missed approach.

**6-10. MISSED APPROACH AND GO-AROUND REQUIREMENTS**

The Local Controller shall hand-off or modify the STARS data block to the appropriate Departure Controller's position and verbally coordinate.

**SECTION 2. ARRIVAL INFORMATION****6-11. ARRIVAL INSTRUCTIONS**

a. Local Control shall perform the following procedures prior to assuming control of approach sequenced arrival aircraft:

- (1) Scan scratch pad information to correlate the type approach and runway assignment for each arrival.
- (2) Ensure arrival aircraft are "quick looked" to the tower CTRD and that full data blocks are displayed.

**NOTE:** When the STARS or Tower CTRD displays are out of service, ensure inbound information is obtained from the Cab Coordinator.

(3) When transfer of communications is completed, Local Control shall confirm the radar identification of each arrival by position correlation, or if necessary, by "ident" method.

b. Local Control assumes control of arriving aircraft sequenced by approach control:

- (1) Parallel Dependent ILS approaches(Staggered) - at the final approach fix (FAF)
- (2) Visual Approaches - from the final approach fix (FAF).
- (3) Simultaneous Independent ILS Approaches-Dual(Simultaneous) - one mile final.

c. The TRACON shall ensure aircraft are transferred to the Tower prior to the FAF and aircraft are:

- (1) At compatible airspeeds.
- (2) Provided appropriate longitudinal separation.

**NOTE:** Appropriate spacing for aircraft established on adjacent localizers for parallel dependent ILS approaches is:

- (a) 21L & 22R - 2NM
- (b) 21L & 22L - 2NM
- (c) 22L & 22R - 1.5NM
- (d) 4L & 3R - 2NM
- (e) 4R & 3R - 2NM
- (f) 4L & 4R - 1.5NM

**NOTICE**

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION  
DETROIT METRO ATCT

DTW N7110.139

Cancellation Date: 2/11/08

**SUBJ: RUNWAY'S 21R/27L OPERATIONS**

1. **PURPOSE.** The purpose of this notice is to add new weather criteria for Runway 21R/27L Operations in the DTW 7110.9, Standard Operating Procedures.
2. **DISTRIBUTION.** Central Terminal Service Area, Support Manager, DTW Tower, and Facility Files.
3. **ACTION.** Operations Managers shall ensure all air traffic control personnel are briefed on this procedure prior to working on operational position.
4. **EFFECTIVE DATE.** February 11, 2007
5. **PROCEDURE.** The following weather criteria shall exist:
  - (a) Wind Parameters – In conformance with appendix 3 (pg A-3-4).
  - (b) Minimums – Tower visibility of 4 miles or greater, ceilings of 2000 or greater.

Joseph Figliuolo III  
Air Traffic Manager  
Detroit Metro ATCT

OIG Investigation #I09Z00021SINV

TRACON Management at Detroit Wane County Metropolitan Airport

(DI-08-3138)

**ATTACHMENT 5**

**Central Service Area Safety Assurance Group Operational Evaluation Team's Quality Control Review report of the Detroit Metro TRACO. The on-site review was conducted February 18-20, 2009.**



## Federal Aviation Administration

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### Memorandum

Date:

To: Joseph Figliuolo, District Manager, Motown District

From: *Nancy B. Kort*  
Nancy B. Kort, Director Terminal Operations, Central Terminal Service Area

Prepared by: Dorothy M Davis, Team Manager, Central Service Area

Subject: Detroit Metro TRACON Quality Control Review (QCR) Report

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The Central Service Area (CSA) Safety Assurance Group Operational Evaluation Team (SAG) has completed a Quality Control Review (QCR) of the operation at Detroit Metro TRACON (D21). The review was conducted in response to allegations raised about operational safety being compromised at the facility. The on-site portion of the review was conducted February 18-20, 2009. Attached is a copy of the QCR Report.

By April 4, 2009, submit your plan for addressing and resolving the issues identified in the report. The plan should be submitted to me through the SAG. All actions in the plan must identify a specific date for completion and a management control that will ensure the issue does not resurface. After the plan is approved, provide a monthly status update to me through the SAG.

The SAG will conduct on-going follow-up to verify actions identified in the plan are effectively addressing the targeted concerns. To this end, each quarter the SAG will conduct a follow-up review to assess progress. These reviews will include an audit of the monthly random audits conducted by the facility. They will also include a random audit of Quality Assurance Reviews (QAR) initiated at the facility.

I encourage you to contact the CSA Operations Support Group (OSG) for resources and their assistance with obtaining interpretations and/or conducting the review of D21's airspace and procedures. I also want to remind you that resources are available at the service center to support your efforts to address the safety culture. I am also available to support you in these efforts.

If you have any questions, or would like additional information, please contact Dorothy M Davis, Team Manager CSA Operational Evaluation Team at (817) 222-5553.

Attachment

**Detroit Metro TRACON Quality Control Review Report**  
Central Service Center, Safety Assurance Group, Operations Evaluation Team  
February 10-20, 2009

## **INTRODUCTION**

On February 10, 2009, at the request of the Central Service Area's (CSA), Director Terminal Operations, the Safety Assurance Group (SAG) initiated a Quality Control Review (QCR) of the Detroit Metro TRACON (D21) operation. The review is in response to allegations raised by a member of D21's management team. The issues raised cover a period as far back as 2002 and relate to operational safety being compromised. The QCR has been conducted to assess the validity of the operational safety issues raised.

ATO Terminal Operations were notified of the initiation of the review by the CSA Terminal Director of Operations. ATO Safety authorized events identified during the review to be reported as system events, i.e., AJS-(R)-(H)-09-E/D/P-XXX. The facility is covered under FAO 7210.669, Air Traffic Safety Action Program (ATSAP); therefore, events identified will be processed accordingly.

## **SCOPE**

The CSA SAG Quality Control Review assessed the following at Detroit Metro TRACON:

- Safety Culture around event reporting
- Effectiveness of Quality Assurance Program Oversight
- Compliance with Standard Operating Procedures (SOP) and Letters of Agreement (LOA) Requirements
- Adequacy of D21's Airspace Design
- Validation of Runway Occupancy Time for Runway 4R/22L

## **METHODOLOGY**

On February 18-20, 2009, the CSC SAG Operations Evaluation Team conducted an on-site visit to gather information and review data. The air traffic manager, quality assurance manager, 2 operations managers, 1 front-line manager (FLM), 1 certified professional controller (CPC) and 2 NATCA representatives were interviewed. The NATCA representatives, FLM and CPC requested to meet with the team. The NATCA representatives provided letters from twenty-eight D21 employees. The majority of these individuals are current employees, but some are retired.

The team reviewed D21's Safety Assurance Order, Standard Operating Procedures and other local documents. Availability of radar and voice data for specific events identified in the allegations was limited due to agency document and data retention requirements. However, a review was conducted of radar and voice data from the 45 days prior to the team's visit. Radar



The majority of the events identified during our review involve boundary or letter of agreement violations. Considerable discussion took place with interviewees about these events and rules involved. It was shared several times how difficult it is for controllers to tell if aircraft are less than 1.5 NM from the boundary. As it was stated by an OM, "There is good cheating and there is bad cheating..." appears to reflect cultural norms around event reporting. The team does not believe the reporting culture has been created by controllers. It appears management has given its tacit approval of the operations as observed.

In December 2008, the facility was covered under the Air Traffic Safety Action Program (ATSAP). The team believes a shift will take place in the reporting culture at D21 as the program matures and becomes institutionalized.

## II. Quality Assurance Program Oversight

The facility's Safety Assurance Program directive, DTW7210.56A as written, appears to be in compliance with ATO Requirements for content. However, the facility does not appear to be in compliance with FAA Order 7210.56, Air Traffic Quality Assurance requirements for the handling, processing, tracking and follow-up on Quality Assurance Reviews (QAR) and Random Monthly Audits. Inconsistencies were found in the facility's daily logs, local QAR Forms, and data contained in the facility's QAR Tracking System.

For the ATC system to be effective, it is essential that all system deficiencies be identified and corrected. Serious system deficiencies may be involved in air traffic incidents that fall outside of the definitions and corrective procedures for OE/OD's. QAR provide an opportunity for the identification, investigation, and resolution through corrective training of such deficiencies.

**A. QAR Logging:** The team reviewed D21's FAA Form 7230-4, Daily Logs, for the 45-days beginning December 28, 2008 thru February 10, 2009. The logs contained 55 "Q" entries. It was unclear in many instances what, if any, actions were taken to investigate events. Numerous items indicated "QAR Initiated" followed shortly afterwards by "QAR Concluded". At times, "ATC services normal or routine with no performance deficiencies" was included. It appeared "personal observation" of controller performance by OMIC's, FLMIC's, or CIC's was the sole method used to investigate events. It was also unclear if a follow-up review was conducted by the QA office.

**B. QAR Local Form and Follow-up:** The 55 "Q" entries shown on the daily logs only contained 5 events that were documented using the facility's Quality Assurance Review Form, DTW7210-6 (Appendix 2). The criterion for the OM's/FLM's/CIC's decision to use the form is unclear. The form did not contain instructions that cover how it should be completed. The forms reviewed were not always complete or did not clearly capture the facts involved.

As an example a QAR contained the following Event Summary and Conclusion.

**Event Summary:** "TCAS RA-Loss of separation @ 1543Z. After reviewing the replay targets didn't merge. However, from my observations of the situation and the replay, the controller either didn't think MES was a factor or she didn't see the 6,000 inbound. After a discussion with the employee, she didn't see MES @ 6,000 until separation became an issue. She then took action to help mitigate the circumstances. No further action taken."

**Conclusion:** "No Controller deficiencies identified."

The document did not contain an aircraft call-sign or type, event description, reason for the TCAS RA- Loss of separation, or information about the closest proximity. There was also no controller action or any other facts provided about the event. It was noted that an FAA Form 8020-11, Incident Report, was completed for the event. However, there was no indication on the QAR or facility's FAA Form 7210-4 of the action.

**C. QAR Tracking & Trend Analysis:** D21's Safety Assurance Program directive states, "The Quality Assurance Department will assist as needed and track the QAR's and supporting documentation. The facility's QAR Tracking Log for January 1, 2009 thru February 22, 2009, was reviewed. The report contained 60 events for the time period. It showed 1 Proximity Event being filed; however, ATO-S was unable to locate a copy. Of the 60 events, there were 10 that were captured on a QAR Form. Only two of the forms noted controller deficiencies. In fact, "Not related to the incident" was noted on one of the forms in the section for deficiencies.

Of the 60 events logged, 49 events indicated "Personal Observation" was the method of investigation. It was not clear what analysis or follow-up was conducted by the QA Department for the events. A request was made for a copy of the Technical Training Report that should be prepared for the ATM covering training assigned through the Technical Training Discussion process, but was not provided.

**D. Random Monthly Audits:** The team reviewed radar data retained in conjunction with the prior 12 months' Random Audits. The team requested voice data associated with 13 operations that occurred prior to November 2008. The voice data had not been retained. Therefore, it could not be determined if requirements were met for the 13 operations.

One of the events appeared to involve application of visual separation between two aircraft. The other events, involved application for visual approaches while on a South Flow Configuration. It appeared aircraft were being turned on to the final approach course well inside 4.0 NM of the runway. The D21/DTW Letter of Agreement requires the early turn on to be coordinated with the tower.

It should be noted, in November 2008 AJS identified facilities were not saving voice data with the radar data reviewed for Monthly Random Audits. The facility now saves both radar and voice data for Random Monthly Audits.

### **III. Standard Operating Procedures (SOP) and Letter of Agreement (LOA) Requirements**

It appears that D21's SOP does not consistently comply with requirements set forth in FAA Order 7110.65, Air Traffic Control, and FAA Order 7210.3, Facility Operations and Administration.

**A. SOP Requirements:** The facility's SOP contains 29 Pre-arranged Coordination Procedures (PACP). Radar data for several days when D21 was operating on the North Flow Configuration was reviewed. Numerous departure aircraft were observed not meeting at or above altitude restrictions associated with PACP. Aircraft were also observed in the departure corridors, but less than 1.5 NM from sector boundaries.

Voice data was reviewed, but did not contain coordination for point-outs on the traffic. There may have been an agreement between controllers "to watch and miss" each other's traffic. However, the voice data also did not contain such coordination or was unavailable.

**B. LOA Requirements:** 11 operational deviations were reported during this QCR. Several events involved aircraft being vectored to the final approach course within 4 NM of the airport. The DTW/D21 LOA establishes the requirement. Correct application of the requirement has been debated in the facility for years. Clearly opposing views exist about the meaning and intent. Yet, no action has been taken to obtain an official interpretation from ATO-I, or remove the requirement from the LOA.

A second set of issues involve satellite airport operations. One involves requirement for missed approach procedures at Troy Airport (VLL). The published approach and missed approach procedure are both off of the Pontiac VOR (PTK). Two questions were raised. "Does the missed approach for VLL conflict with the operation at PTK airport? And, "What needs to be protected if a missed approach is executed at VLL?" There appears to be a long standing debate in the facility about whether an alternate missed approach procedure is required to be published in order to be issued. However, no action appears to have been taken to obtain clarification or interpretations.

The individual raising the allegations that are herein being reviewed has cited additional issues. The facility appears to have had open debate about them, but has not obtained clarifications or interpretations from the appropriate office. The full list is attached and will be given to the CSC Operations Support Group for follow-up with the facility.

#### **IV. Adequacy of D21's Airspace Design**

D21's Airspace does not appear to be designed to ensure movement of traffic flows in, out, and through the Detroit Metro Airspace without controllers being burden with completing additional coordination with each other. The proximity of traffic flows to sector boundaries appears to routinely require controllers to make multiple point-outs or enter into "special agreements" with each other to ensure compliance with FAA Order 7110.65. Coordination of use of airspace requirements.

Again, the facility has at least 29 PACP in place to mitigate coordination associated with point-outs for established traffic flows. Individuals interviewed indicate changes are in progress that involves adding an additional PACP.

#### **V. Validation of Runway Occupancy Time for 4R/22L**

On February 24, 2009, the team requested a copy of the documentation for D21's FY-2008 4R/22L Runway Occupancy Time (ROT) documentation. On March 3, 2009, after completing an extensive search, the facility advised the documentation could not be found.

The air traffic manager took immediate action to suspend the use of the reduced separation requirement for the 4R/22L. Operation. The operation will remain suspended until an average 4R/22L ROT is validated based on new data. The D21 traffic management officer is gathering data to complete the validation process.



## Federal Aviation Administration

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### Memorandum

Date:

To: Nancy B. Kort, Director Terminal Operations, Central Terminal Service Area A/C  
From: David P. Medina, Group Manager, Central Service Area  
Prepared by: Dorothy M. Davis, Team Manager, Central Service Area  
Subject: Detroit Metro TRACON Quality Control Review Team Report

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As per your request, the Central Service Area (CSA) Safety Assurance Group Operational Evaluation Team has completed a Quality Control Review (QCR) of the operation at Detroit Metro TRACON (D21). The review is in response to allegations raised by an employee at D21. The employee alleged that operational safety is being comprised at the facility. The QCR Team's report is attached.

On February 20, 2009, the District Manager was verbally briefed during an out brief by the team. Since that time several actions have been initiated by the District Manager to address many, if not all, of the issues identified in the report.

If you have any questions, or would like additional information, please contact Dorothy M. Davis, Team Manager CSA Operational Evaluation Team (817) 222-5553.

## Issues Given To D21 QCR Team

### Interpretations:

1. Facility interpretations condone the use of "Look-and-go," and informal prearranged coordination. This is coordination in which two controllers agree to blanket point-outs similar to prearranged coordination without the required facility directive. "Reference you're traffic I will descend to four thousand on the downwind for runway 27L." or "I'm going to be out the back of the dump zone, will you miss my traffic?" or "These aircraft are climbing slow, can I force the data block and use your airspace?" While I understand that verbal coordination via a "block" of a designated portion of airspace would be appropriate, improvised Prearranged Coordination without the safeguards of the mandated facility directive and associated requirements would seem to be prohibited by 7110.65 Chapter 5, section 4.
2. 7110.65 requirements for use of reduced separation afforded by Simultaneous Independent ILS Approaches.
  - a. Reference paragraph 5-9-7b4: The facility does not require the application of this rule. Aircraft are often intercepting the final approach course in a turn, and without the 1 mile of straight flight. Additionally, aircraft that intercept the final approach at an altitude above the glide slope and do not have an opportunity to level before the appropriate step-down fix have been routinely allowed to continue the approach.
  - b. Reference paragraph 5-9-7b2: The facility routinely executes these approaches when the DME portion of the ILS is OTS. With the decommissioning of most markers, this results in verbal notification of the initial step down fix and FAF to non-RNAV aircraft, and appears to conflict with the requirement that the ILS be operating normally.
  - c. Reference deviations on the non-NIZ side of the final approach course: Facility guidance is that there is no limit to how far the aircraft may deviate, only a requirement for the monitor controller to keep the aircraft out of the NIZ. This could result in the issuance of a turn-on contrary to 5-9-7a1. Turning an aircraft away from traffic on the parallel final approach course to keep it out of the NIZ is understandable, executing what amounts to a turn-on by turning the aircraft towards traffic without altitude separation seems inappropriate. The 7110.65 is silent on this issue.
  - d. Reference paragraph 5-9-7a1. Associated with the previous discussion, facility guidance has been provided that the "established" requirement is not required for independent ILS approaches. It is asserted that this is only a requirement for dependent approaches. The requirement for independent approaches, I have been advised, is to be on the tower/monitor frequency before the loss of separation. This appears to directly conflict with the cited paragraph.
3. Read back procedures per 2-4-3 do not required a detailed read back of clearances. It does, however, require a controller to ensure that a read back is correct and complete if an item is read back. This seems to be in contradiction to interpretations issued by appropriate authority (read back does not need to be complete, only the portion of the clearance that is read back)

must be correct). Is the interpretation current? If so, the 7110.65 needs to be amended to reflect the current interpretation.

4. **7110.65 5-3-2, Primary Radar Identification Methods.** subparagraph a. allows for the radar identification of an aircraft based on the observance of the primary target within 1nm of the "takeoff runway end" at airports with an operating control tower. This would assume that the departure controller is aware of the "takeoff runway." At D21, this is not always known. For instance, although the departure controller may know that the aircraft will depart one of several parallel runways, he/she usually does not know which one. Is the 7110.65 satisfied in this case? Simultaneous departures off of parallel runways would seem to dictate the requirement to know which runway your aircraft departed in order to apply this primary method of identification. Also, the 7110.65 requires a verbal or nonverbal rolling/boundary notification for each departure. At D21, Letter of Agreements have been executed that state: "Consider the D21 Run Down acceptance entry (IFR release) as a rolling call if the aircraft is rolling within two (2) minutes of the time released by D21. "Rolling" is defined as when the aircraft physically begins its takeoff roll." This seems to alter the 7110.65 requirement by making it less restrictive. An arbitrary two minute intent to roll vs. a rolling notification is the LOA requirement. Would this not require the prior approval of Vice President, System Operations Services per 7110.65 paragraph 1-1-10?
5. **7110.65 paragraph 5-6-2e** dictates the provision of "radar navigational guidance." The facility interpretation is that, since paragraph 4-2-5a3 allows the phraseology "cleared direct (fix)," radar navigational guidance is not required. I do not believe this is an accurate interpretation. Chapter 4 deals with IFR aircraft, but not necessarily those being provided radar services. While the phraseology can be used in a radar environment, it does not relieve the controller of the responsibility to provide radar navigational guidance. For instance, it would be totally appropriate to use the "cleared direct" phraseology if the aircraft was already established, or on a heading that will, "in a reasonable distance", intercept the non-radar route to be flown. It would not be appropriate outside of those parameters. In the latter eventuality, a heading must be issued until the aircraft is able to proceed direct to the fix.
6. **The LOA between D21 and DTW** requires D21 to transfer communication to the tower prior to the TCP. Does failure to do so constitute an OD? If so, how does this differ from the 7110.65 requirement to transfer communications prior to entering the receiving controller's airspace (paragraph 2-1-17a)? I have seen preliminary OD reports that include a radar controller's failure to forward information required in an LOA, which is what got me thinking in this direction.
7. **After D21 hands off an aircraft to ZOB at or climbing to 13,000 feet,** the upper limit of D21 airspace, and executes a frequency change, we continue to utilize the Mode-C for separation purposes (specifically, after observing the Mode-C showing the aircraft climbing out of 13,000, we climb other traffic that may not be longitudinally separated) to that altitude. Is this a correct use of Mode-C data? If yes, I would add this to the DCP category. The situation can occur, as it sometimes has, that the aircraft handed off to ZOB may show a climb that was not issued (in the instance where the pilot overshoots his assigned altitude, for instance), but we would not be aware of this, since the aircraft is not on our frequency. This could result in a loss of separation.

### Document Change Proposals:

1. 7110.65 paragraph 5-4-3a1 allows for a procedure that makes accurately identifying system events and their causes impossible. If no verbal coordination is required, as the paragraph intimates, and, if recorded coordination is optional there would exist no verifiable mechanism to determine if an event occurred, what type of event occurred and what caused the event. This seems to be in conflict with the newly emerging reporting culture. I propose to change the document to reflect the necessity that all coordination related to the separation of aircraft be recorded.
2. Additional assignments to this category would depend on the interpretations rendered.

### Airspace and Procedure Review:

1. **Airspace Boundary Separation:** Our airspace delegation/depiction is not sufficient in many areas to allow the controller to maintain airspace boundary separation as required by 7110.5 paragraph 5-5-10. Attempted compliance results in repeated point-outs and/or numerous special agreements. Specific instances include, but may not be limited to those identified below. Additionally, gaps in boundary depictions or boundaries that exist, but are not depicted, prohibit the identification of compliance.
  - a. On a south flow configuration, the final approach course for YIP RWY23L, even if 1.5nm from the adjacent West Final airspace (it appears to be less), mandates the necessity of a point out for every aircraft on the approach.
  - b. The area referred to as the "cage" (an area approximately 4nm wide to allow transit of traffic over the DTW finals) allows for only a 1nm wide area to position traffic so as to avoid the necessity of a point out to one of the adjacent sectors.
  - c. Our jet departure procedures include a 10nm crossing restriction that is supposed to ensure that the jet departures do not fly into satellite controller airspace. The restriction is not sufficient to do so, however. On a south flow configuration the applicable boundary is less than 10nm from the DXO VOR, and, subtracting the required 1.5nm boundary separation requirement, a crossing restriction closer to 7nm would be indicated (I do not have the exact numbers with me at this writing.) In warmer weather, this creates the need for multiple point-outs.
  - d. The initial departure dispersal area for jet departures is not wide enough in many weather conditions to allow for the four headings on which we attempt to diverge the departures. This results in boundary separation issues between East and West Jet Departure, as well as between Jet Departure and adjacent Satellite and Arrival airspace.
  - e. On a north flow configuration, East Jet Departure airspace steps up above satellite airspace in 5,000 and 6,000 foot shelves. During other than cold weather, normal climb rate is not sufficient to consistently top this airspace.
  - f. The downwind corridors of Feeder airspace, in several areas, are too narrow to effectively contain aircraft in feeder airspace with consideration for airspace boundary.

separation. Additionally, the descent area from 11,000 to 10,000, with consideration for airspace boundary separation, is short enough to make the timing of the descent over critical.

2. **Facility Standard Operating Procedures do not adequately translate 7110.65 separation requirements into facility application based on airspace delegation.** This applies specifically to the Final Positions during any approach scenario (Dependent ILS, Independent ILS, Visual approaches). The airspace boundary that exists between East and West Final Positions, for instance, is not addressed. As written, when more than one arrival position is open, every arrival aircraft should require coordination.
3. **Prop departures off of DTW routinely fly through Jet Departure airspace without the appropriate point-out.** The top of tower assigned airspace is 2,500 feet. Jet Departure owns the airspace above that. However, these prop departures routinely climb above 2,500 before proceeding far enough on their tower assigned heading to enter the appropriate satellite controller airspace. Notice D21 7110.161, designed to correct this issue, is essentially an effort at instituting a Prearranged Coordination Procedure, but does not specify all that is required for same.
4. **There are numerous LOA/SOP omissions/irregularities.** Some examples include: a procedure with ZOB to handoff P1K departures routed via SCORR and CAVVS to FNT sector which is not reduced to writing: D21/DTW LOA with regard to Area 51; LOAs with satellite towers that do not require the issuance of the FDIO generated clearance; a D21/DTW LOA that assigns airspace to the tower AOB 2,500 but does not limit the use from 2,000-2,500 to VFR aircraft.
5. **The facility does not know why we are providing 5 vs. 3 nm separation to aircraft landing VFR towered controlled airports when on differing radar sites.** Many years ago, I was told the 5nm requirement was due to the lack of sufficient radar coverage, necessitating the use of the non-radar procedure: a timed approach (7110.65, paragraph 6-7-10). However, if this is still the case, we are not complying with this directive. We do not constrain its use when the visibility is below the highest circling minimum and we do not terminate radar services as required. Additionally, we utilize this 5nm spacing for aircraft on visual approaches, what rule are we utilizing to ensure separation? Further, I have been told of controllers who, thinking this is simply a LOA requirement to allow for tower departures, negotiate for a diminished spacing. Lastly, the need to apply the increased separation (at YIP or DTW, for instance, when on the back-up site) is not knowable since we do not know why we are doing so, where we are doing so, to begin with.
6. **Prearranged Coordination Procedures:**
  - a. Areas exist in preference to airspace re-delegation even though the controller into whose airspace the prearranged coordination applies avoids the airspace.
  - b. Areas that are insufficient to accommodate the prearranged coordination without the added use of a point-out.
  - c. Areas created more for convenience than necessity.



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Thomas Boland/ATIS/PAA  
01/23/2005 09:10 AM

To: Don Diney AOL/PAA@PAA tom.murphy@faa.gov  
Tom Funari@faa.gov tom.funari@faa.gov and daniel@faa.gov  
Thomas F. Boland@faa.gov, Kenneth J. Larson AOL/PAA@PAA, Robert J. Sanger AOL/PAA@PAA  
cc: Cliff Amundson/PAA@PAA  
Re: DFO: A Couple of Clarifications

FLM's

A couple of you had some recent questions and below are your final answers!

1) I'd asked about DTW Satekta departure turnouts initially in Departure's airspace and I am pleased to say that we will soon be adding the following clarifying note to the appropriate sections of D21 SAT/CEP SOP's  
NOTE: D21 Satekta turnouts off the DTW airport are authorized to transition through D21 Departure airspace on the pre-coordinated (i.e. ZDS) headings outlined in the D21/DTW LBA.

**BOTTOM LINE:** Keep doing what we are doing!

3) TF asked for clarification of the ATP regarding "some ILS" procedures, specifically ATP 5-6-7 (5b4) Clear the aircraft to descend to the appropriate glide slope/glidepath intercept altitude soon enough to provide a period of level flight to dissipate excess speed. Provide at least 1 mile of straight flight prior to the final approach course intercept and I am happy to provide the clarification as it is explained below:

Compliance of "a period of level flight to dissipate excess speed" can occur at any point within our airspace, including an outer fix that the pilot has been instructed to cross at 13000' and 250kts. This also provides the opportunity of "at least 1 mile straight flight prior to final approach course intercept".

EXAMPLE: When vectoring into a strong head wind, dissipating excess speed may in fact be heading at 13000' and slowing to 250kts. We see this with B's traffic, south flow, inbound from EPPCA, routinely.

More common during ILS approaches that meets the 7136.65' intent is:

- Ponder slows downwind traffic before final descent to 7000 or 8005.
- Ponder descends time traffic to 6000 or 7000, then slows.
- Final controller descends to lowest available altitude then slows, especially on low side.
- Final controller slows then descends.

EXAMPLE: Final controllers continuing to slow aircraft during the turn-on phase of the approach is used to maintain appropriate spacing and separation, not to dissipate excess speed as intended in the same paragraph below. This also provides the opportunity of "at least 1 mile straight flight prior to final approach course intercept".

1) Clear the aircraft to descend to the appropriate glide slope, intercept altitude soon enough to provide a period of level flight to dissipate excess speed. Provide at least 1 mile of straight flight prior to the final approach course intercept.

**BOTTOM LINE:** Keep doing what we are doing! We already consistently provide speed and descent control that meet or exceed ATP requirements to avoid undue ("high and fast") pilot workload.

Please see me in person should there be any further questions

Thanks ya'll!

Respectfully,

Tom Boland III  
Air Traffic Operations Manager  
Detroit TRACON (D21)

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# Memorandum

Subject: **INFORMATION:** OIG Investigation  
#I09Z00021SINV, Re: TRACON Management  
at Detroit Wayne County Metropolitan Airport  
(DI-08-3138)

Date: February 16, 2011

From: Ronald C. Engler *RCE*  
Director  
Special Investigations, JI-3

Reply to  
Attn. of: X6-4189

To: Judith S. Kaleta  
Assistant General Counsel for General Law  
Office of General Counsel

This supplements my February 3, 2011, memorandum. Attached is a report from FAA Air Traffic Organization (ATO) Safety Investigations and Evaluations, dated May 19, 2008, concerning an audit of the Southwest Flow at the Detroit Wayne County Metropolitan Airport Air Traffic Control Tower. We note that although Strawbridge's May 2009 memorandum references an investigation by FAA's Office of Air Traffic Safety Oversight (AOV), neither AOV nor ATO Safety is able to locate any record of an investigation by AOV at Detroit Metro on May 12, 2008.



# Federal Aviation Administration

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## Memorandum

Date: May 19, 2008

To: James Bedow, Acting Director, Safety Investigations and Evaluations

From: *JMR* Jeffrey M. Rich, Safety Investigations

Prepared by: Peter Trapp, Safety Services

Subject: Detroit Metropolitan Wayne County Airport Traffic Control Tower Southwest Flow and Training Audit

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### **Background.**

An audit of Southwest Flow operations and facility training was conducted at Detroit Metropolitan Wayne County Airport Traffic Control Tower (DTW ATCT) on May 12-14, 2008 by Jeffrey M. Rich, Michael McFadyen and Jon Jones of the ATO Office of Safety Services, ATO-S. The audit was conducted at the request of ATO-S. The group interviewed nine DTW personnel and reviewed National Offload Program (NOP) radar data, facility-training records, briefing items, and documentation related to DTW's use of the Southwest Flow. The Air Traffic Manager was briefed on the results of the audit and provided recommendations on May 14, 2008.

### **Audit Results.**

#### **Southwest Flow.**

The group was briefed on the Southwest Flow configuration by facility management on May 12, 2008. Facility management stated that the Southwest Flow configuration was discontinued at DTW in November 2007 because of the misapplication of the separation requirements of paragraph 3-9-8 of FAA Order 7110.65, Air Traffic Control, and the confusion associated with the facility briefings following audits by the FAA's Air Traffic Safety Oversight Service, (AOV), in August 2007 and ATO-S in October 2007. The Air Traffic Manager indicated that since the suspension of the procedure, there were two instances where aircraft departed Runway 21R and arrived Runway 27L at the direction of the Front Line Manager on duty because of extenuating circumstances involving winter weather operations.

The group randomly selected three dates during April 2008 where the airport configuration was favoring the Southwest Flow (arriving Runways 22L/22R and departing Runway 21R). NOP data was utilized to monitor arrivals and departures for 24 hours and 45 minutes, and the group observed one arrival to Runway 27L on April 23, 2008. A review of FAA Form 7230-4, Daily Record of Facility Operation, indicated that the event was recorded as a Quality Assurance Review, and that the arrival aircraft was given priority because of a blown nose wheel tire. The FLM elected to utilize Runway 27 so as not to impact the primary arrival runways in the event of a runway closure. The operation was conducted in accordance with the requirements of par. 3-9-8, and the group found no other arrivals to Runway 27L during the monitored sessions.

The group interviewed five Front Line Managers (FLMs) regarding the Southwest Flow. The FLMs stated that the procedure was discontinued in November 2007 because of the workforce's misunderstanding of the separation requirements. When asked to provide an explanation of the separation requirements of paragraph 3-9-8 of FAA Order 7110.65, the FLMs provided three distinctly different interpretations of the rule. Examples of the responses included,

“If the Runway 27L arrival is inside the final approach fix, don't clear the Runway 21R aircraft for departure;”

“The Runway 27L arrival is rolling out before you can depart Runway 21L;” and

“The Runway 27L arrival has rolled through the centerline of Runway 21R or the Runway 27 arrival is on the ground and turned off the runway before you depart Runway 21”

### **Training Records.**

The group reviewed 13 randomly selected FAA Forms 3120-1, Training and Proficiency Records, from 36 assigned tower controllers. The review revealed that all but one of the TRAX sheets contained employee and supervisory signatures, and all signatures appeared to be genuine. The following discrepancies with TRAX entries were noted:

Duplicate entries were found on several of the TRAX sheets due to overlapping time periods between separate TRAX printouts.

Entries were listed differently on the overlapping pages. For example, an entry titled “Southwest Flow Briefing” on one TRAX printout was listed as “Southwest Flow Briefing DTW-08-058” on the overlapping printout.

Duplicate entries in separate TRAX sheets from the same FAA Form 3120-1 regarding a mandatory briefing item indicated different completion dates for the same briefing.

One briefing item listed the same completion date for all 36 tower personnel.

TRAX certification signatures were recorded more than 90 days following the month in which the training was completed.

The team specifically reviewed training provided on DTW Notice 7110.151, Procedures For Conducting Southwest Flow, and found that training was not recorded for three employees in TRAX sheets, and that five employees completed the training after the effective date of the notice. During interviews with the FLMs, one specifically stated that, "I didn't brief it (Notice 7110.151) because it wasn't going to happen."

The investigation team reviewed the content of three briefing items including DTW Notices 7110.151, 7110.152 and the "North/East Flow Procedure." Although Notices 7110.151 and 152 addressed similar topics, there was a marked difference in the content of the two briefing packages. The briefing package for N7110.151 contained only the notice itself, while the package for N7110.152 contained the Notice, applicable paragraphs from FAA Order 7110.65, and two runway photographs that had graphics added to highlight the areas addressed by the notice. The briefing item labeled "North/East Flow Procedure," made necessary by the closure of Runway 21L/3R on April 21, 2008, was disseminated on April 23, 2008, and the following handwritten words were written in red marking pen at the top of the folder, "Read before Working!" The briefing consisted of nine pages of excerpts from Order DTW 7110.9, Detroit Metro Standard Operating Procedures. Facility personnel also stated that the original briefing was distributed with two of three sections missing, and was recalled so that the pertinent items could be included. The group compared the tracking sheet and the completion dates with employee work schedules in Cru-ART, and found that eight employees worked operational positions after the briefing was distributed and prior to completing the briefing.

Interviews with facility staff managers and FLMs indicated that briefing items are developed by offices of primary interest and FLMs. Staff managers stated that briefing items are normally routed through facility management, staff offices, and the tower Operations Manager for accuracy and comment when adequate time permits. The Support Manager for Training stated that his office distributes items that require TRAX entries, but does not normally review or track items that do not require a TRAX entry. FLMs have the authority to develop and distribute briefing items that dynamically occur after administrative hours or on weekends, such as navigational aid outages or runway closures.

The FLMs discussed the process used to complete briefing items with operational personnel. With respect to the briefing of Notice 7110.151, four FLMs stated that they received the briefing verbally from the Operations Manager, and subsequently briefed the controller workforce; the fifth FLM received the briefing from a peer FLM. A portion of the controller briefings took place in the tower cab as employees entered on duty, and others were completed during FLM team briefings. Two of the FLMs stated that it was their practice to initial the tracking sheet for the employee who received the briefing, and a third stated that the employees were required to enter his/her own initials. FLMs stated that if controllers posed questions requiring clarification of various aspects of the briefing information, the FLMs would pass the questions to the Operations Manager if they were unable to provide a suitable answer.

### **Recommendations.**

1. The facility should designate one office or position that would function as the central distribution/tracking office and repository for all current briefing items.

2. The facility should designate one office or staff position to conduct all face-to-face briefings to ensure the accuracy and consistency of the information provided.
3. The facility should conduct an immediate audit of the training department record keeping and TRAX entries, and periodically review these records for completeness and accuracy.
4. The facility should formalize a process to prioritize briefings (must read, informational, etc) and the means by which priority briefings are accomplished face-to-face.
5. The facility should brief those personnel responsible for making TRAX entries in FAA Forms 3120-1 on the requirements for making entries and obtaining required signatures.
6. The facility should consider designating one or more FLMs from the ATCT to review operational briefing items for quality and content prior to finalization and distribution.