DTW Safety Management System Manual and Program

Final Gap Analysis

DETROIT METRO • WILLOW RUN
WAYNE COUNTY AIRPORT AUTHORITY

April 18, 2008

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planning and implementation consultants

In Association with Jacobsen/Daniels Associates

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1 Introduction

1.1 Project Description

In November 2005, the International Civil Aviation Organization (ICAO) amended Appendix 14, Volume I (Aerodrome Design and Operations), to require member States to have certificated international airports establish a SMS. The FAA supports harmonization of international standards and has worked to make U.S. aviation safety regulations consistent with ICAO standards and recommended practices.

The FAA intends to implement the use of SMS at U.S. airports to meet the intent of the ICAO standard in a way that complements existing airport safety regulations in 14 CFR Part 139, Certification of Airports.

The FAA is conducting a pilot program to evaluate the implementation of Safety Management Systems (SMS) at airports of varying size and complexity. The pilot program will allow airports and the FAA to gain experience establishing airport-specific SMS that are tailored for the individual airport. This experience will provide SMS best practices and lessons learned that the FAA can use as it considers whether to incorporate SMS into Title 14 Code of Federal Regulations (CFR), Part 139, Certification of Airports.

As part of the pilot program, the International Air Transport Association (IATA) and Jacobsen/ Daniels Associates (JDA) have been hired to prepare a Safety Management System Manual and Program Plan for the Detroit Metropolitan Wayne County Airport.

1.2 Project Kick-off

A WCAA SMS Kickoff Meeting to provide a framework for the project was held on February, 15, 2008 at the WCAA Administration Offices.

1.3 On site interviews 17 to 20th March

Two introductory SMS training sessions were held. The first session took place on Monday 17th March at 1:00 pm, and the second session on Tuesday 18 March at 9:00 am. The SMS training session participants from WCAA were as shown in the following table.

Name	Department
Monday 17th March 2008	
Debra Seig	Public Safety
Matt LaFleur	Airfield Operations
Bruce Greenberg	Airfield Operations
Ken Szymanski	–Airfield Operations
Chris Kaminski	Risk Management
Tuesday 18th March 2008	
Mary C. Walker	Fleet Maintenance training

Joe McCabe	Field Maintenance
Tom Snell	Fleet Services
Chris Kaminski	Risk Management
Devin O'Rourke	Field Maintenance
Matt Orzech	Facilities Maintenance
Sean Brosnan	Emergency Management

Interviews were held at the Detroit Metro Airport on March 18th, 19th, and 20th. WCAA personnel participating in the interviews were as shown in the following table:

Name	Department
Tuesday 3/18/2008 – Policy Statement/Organizational structure	
Chris Kaminski	Risk Management
Dianne Walker	Airfield Operations
Mark DeBeau	Public Safety
Leigh Stepaniak	Risk Management
Mary Muhammad	Public Safety
Tuesday 3/18/2008 – Traffic and Wind Socks/Wildlife Hazard & Mitigation/Aircraft Index	
Bruce Greenberg	Airfield Operations
Matt LaFleur	Airfield Operations
Chris Kaminski	Risk Management
Tuesday 3/18/2008 –Internal Audits/Pedestrians and Ground Vehicles	
Bruce Greenberg	Airfield Operations
Matt LaFleur	Airfield Operations
Chris Kaminski	Risk Management
Mary C. Walker	Fleet Maintenance training
Kevin Wick	ARFF
Michael Evans	ARFF
Wednesday 3/19/2008 –Training/Communications/Records	
Gary Dust	
Matt LaFleur	Airfield Operations
Mary C. Walker	Fleet Maintenance training
Wednesday 3/19/2008 –Safety Risk Management/Hazard Identification/Risk Assessment/ Risk Mitigation/Risk Tracking	
Chris Kaminski	Risk Management
Joe McCabe	Field Maintenance
Alex Gonzales	Field Maintenance

Name	Department
Bruce Greenberg	Airfield Operations
Kevin J. Grammes	FAA-ATCT
Bryan Wagoner	WCAA Environmental
Ken Szymanski	Airfield Operations
Wednesday 3/19/2008 –ARFF/HAZMAT	
Michael Evans	ARFF
Matt LaFleur	Airfield Operations
Mary C. Walker	Fleet Maintenance training
Craig Carnell	ARFF
Wednesday 3/19/2008 –Emergency Action Plan	
Sean Brosnan	Emergency Management
Denine Alfaro	Emergency Management
Sandy Altschul	Emergency Management
Thursday 3/20/2008 –Procedures/Safety Objectives/Culture	
Gale LaRoche	Human Resources
Thursday 3/20/2008 –Construction/Paved Areas	
Steve T. Wiesner	Planning
Bruce Greenberg	Airfield Operations
Thursday 3/20/2008 –Personnel	
Bruce Greenberg	Airfield Operations
Matt LaFleur	Airfield Operations
Mary C. Walker	Fleet Maintenance training
Thursday 3/20/2008 –Self Inspection	
Bruce Greenberg	Airfield Operations
Matt LaFleur	Airfield Operations
Mary C. Walker	Fleet Maintenance training
Thursday 3/20/2008 –Verify Operational Requirements	
Bruce Greenberg	Airfield Operations
Matt LaFleur	Airfield Operations
Tom Snell	Airfield Operations
Thursday 3/20/2008 –Condition Reporting	
Bruce Greenberg	Airfield Operations
Matt LaFleur	Airfield Operations
Thursday 3/20/2008 –Markings/Signage/Lighting	
Bruce Greenberg	Airfield Operations
Matt LaFleur	Airfield Operations
Joe McCabe	Field Maintenance

2 Literature Review

Available SMS-related documentation available was reviewed. Reviewed documents are listed in Appendix A. For the purpose of this project, we found that the two following documents were most useful:

1. SMS Implementation at Airports Outside the United States
   Interview Summaries

   The interview summaries contained in SMS Implementation at Airports Outside the United States was developed out of research conducted during in the development of ACRP Report 1, Volume 1: Overview of Safety Management Systems for Airports. The summaries consist of notes that were compiled through interviews with foreign airport officials and civil aviation authority personnel who are involved in the implementation of safety management systems (SMS) in their organization. They describe experiences and lessons learned during the SMS adoption at airports outside the United States and may be useful to executives within the United States who are planning to implement SMS in their organization.

2. Airport Cooperative Research Program
   Report 1, Volume 1: Overview

   This report explains what a safety management system (SMS) is and how a systems approach to safety management will benefit both the safety and business aspects of airports. It describes the advantages associated with instituting such a system and explains the four components or pillars (safety policy, safety risk management, safety assurance, and safety promotion) that are part of an SMS. The report also provides background information on the International Civil Aviation Organization's requirements for SMS at airports and relates the experiences of airports located outside the United States in implementing SMS.

The four components of SMS identified in this report were the basis for the structure of the questionnaire used in the interviews with WCAA staff to identify gaps between existing practices and SMS requirements.

3 Safety Management Gap Analysis

3.1 SMS Gap Analysis

The SMS Gap analysis requirement under the Pilot Study is meant to determine whether deficiencies exist between components found in current operations compared to SMS program as it relates to FAR Part 139. These requirements were separated into four (4) distinct elements:

1. Safety Policy and Objective
2. Safety Risk Management
3. Safety Assurance
4. Safety Promotion

Item	Status	Action Required
SAFETY POLICY AND OBJECTIVE		
Policy		
	No formal Safety Policy/Mission Statement related to SMS has been developed as it relates to Part 139. However, WCAA has issued a comprehensive Safety Policy meant to provide employees with a safe and healthful work environment, in essence the Policy deals with Occupational Health and Safety Administration (OSHA). *Although SMS and OSHA both deal with safety and need to establish a safety culture to be successful, they are different in their respective area of application. OSHA deals with safety in the workplace and focuses on protection from hazards and risks arising out of, linked with or occurring in the course of employment. OHS deals on how these risks and hazards affect people (employees and others). SMS is aimed at applying the best safety management practices in order to reduce the frequency and severity of aviation incidents and accidents.* We can easily acknowledge that both programs must work in harmony to be successful. Operational requirements, i.e. tasks that are	Develop an SMS Policy document that will include a policy statement, objectives and goals and roles and responsibilities.

Item	Status	Action Required
	needed to create a safe environment for aviation (SMS), must be carried out by people applying best safety practices (OSHA).	

Item	Status	Action Required
Senior Management Commitment	No formal written policy in place.	The Policy should be endorsed by the CEO.
Commitment to continual safety improvement	No formal written policy in place.	As with the OHSA Policy, the Safety Policy should confirm that the goal is not only to maintain a status but continue to improve in incident prevention.
Commitment in establishing a non-punitive environment	No such program presently in place. A zero tolerance practice is now observed for serious safety breaches (i.e. runway incursions).	Draft a non punitive reporting policy or program that will not allow for deliberate, unlawful or grossly negligent incidents.
Commitment for providing necessary resources	No formal commitment in place	Should be part of the safety policy.
Commitment to make safety the highest priority	The Airport's Mission Statement states, "**To operate safe, secure and dynamic air transportation facilities for our customers, creating economic vitality by providing global travel, cargo and business opportunities**.	Safety is the highest priority of the Airport
Approval of the Safety Policy	No formal written policy in place.	The CEO should approve the SMS Safety Policy

Item	Status	Action Required
Promotion of the Safety Policy	No policy in place.	The policy should be subject to wide promotion starting from the CEO and then to every managerial level of the organization.
Periodic review of the Safety Policy	No policy in place.	A process should be developed in order to insure that the policy is reviewed periodically.
Communication of the Safety Policy to all employees	No policy in place.	A process should be developed to ensure that all employees receive a copy of the policy and are made aware of their role and responsibilities regarding safety.
Organizational Structure		
Appointment of a senior manager	Not required under FAA guidelines.	The appointment of a senior manager for Safety is constructive in ensuring that an SMS culture is being created and enforces managerial commitment in making safety a high priority.

Item	Status	Action Required
Senior manager control over financial and human resources		Naming the Executive Vice-President Operations as the Safety Senior Manager should ensure that this requirement is met.
Appointment of a Safety Manager	No SMS Manager has been identified. Present Safety Manager's role is identified to OSHA.	Consideration should be given to assign the responsibility to the existing Safety Manager dealing with OSHA since the roles and responsibilities are similar.
Safety Manager to report to the highest level of management	Not the case with the present OSHA Safety Manager.	When appointing a Safety Manager, consideration should be given to changes in the organization.
Safety Manager role and responsibilities clearly defined	They are clearly defined with OSHA.	Safety Manager to engage in a counselling role with line managers to ensure that safety processes are carried out within every department.
Cross-functional Safety Committee	Airfield Coordination and Safety Committee now in place but focused on FAR Part 139	This committee could be a subcommittee of the Executive Safety Committee. Safety issues should be tabled at a cross-functional SMS committee such as the quarterly Executive Safety Committee for discussion and resolve. Terms of reference for this committee should be clearly stated, including roles and responsibilities for members.
Safety authorities,	They are clearly defined with OSHA.	These need to be described and

Item	Status	Action Required
responsibilities and accountabilities for personnel at all levels		mandates defined in a model established in the OSHA policy document.
Personnel aware of their authorities, responsibilities and accountabilities with SMS	Not yet defined	Will need to be described and issued in a formal process before assessment.
Procedures		
Safety process to identify and attenuate safety risk	No process in place	Develop a process.
Issue of new and revision of current safety procedures	No process in place	Develop a process.
Changes and revision clearly communicated to staff	No process in place	Develop a process.
Easy accessible procedures to all personnel for continuous training purposes	No process in place	Develop a process.
Performance indicators, goals and objectives		
Performance indicators	No performance indicators have been identified and no development process has been established.	Develop a process to identify performance indicators.

Item	Status	Action Required
Safety objectives – Establishment, distribution and publicizing	No formal safety objectives have been identified	Corporate safety objectives will need to be identified and disseminated throughout the organization where each department will formulate their specific supporting objectives.
SAFETY RISK MANAGEMENT		
Hazard identification		
Reactive process for capture of internal information (incidents, accidents and data)	A formal self inspection program is carried out and operations specialists will also report on otherwise observed incidents and system failures. No formal process exist	A formal process will need to be developed showing reporting levels, follow-through, etc.
Reactive reports reviewed at the appropriate level	No documented process in place.	The reporting process should clearly identity reporting levels within a documented process.
Feedback to contributors	Some feedback is provided on occasion.	The reporting process should include a requirement for feedback on all reports.
Monitoring and analyzing trends	Trends are not monitored.	A process should be developed to insure that trends found in the reactive reporting system are analyzed at the appropriate level.

Item	Status	Action Required
Corrective and preventive action following event analysis	Practice shows that corrective action is taken following reporting of an event or serious concern. No formal written process is in place to ensure that corrective and preventive actions are taken	Process to be documented.
Proactive process for capture of internal information (incidents, accidents and data)	The self inspection program is a proactive procedure for capture of information, but no formal proactive process is in existence.	Process to be documented.
Proactive reporting process simple, accessible and commensurate to the size of the organization	The airport self-inspection program is a form of proactive reporting system.	The self-inspection program should be complemented to ensure proactive reporting of all safety-critical systems. Process to be documented.
Procedure to identify hazards that the organization faces in its operational environment	No formal procedure in place.	Process to be documented.

Item	Status	Action Required
Procedure to identify hazards resulting from change in systems, operations or procedures	No written procedure in place.	A written procedure should be developed to ensure that safety hazards are identified when changes occur in operational systems, operations or procedures.
Systematic review of daily self-inspections, assessments, reports, safety risk analysis and safety audits	No written procedures for systematic reviews	The process will need to be documented.
All identified hazards are documented and analyzed and associated risk are assessed	Systematic hazard reporting and risk analysis are not formally carried out.	Processes to be developed.
Risk assessment		
Reported occurrences and deficiencies are investigated	No written process is in place that ensures that reported occurrences and deficiencies are being investigated.	Process should be developed

Item	Status	Action Required
Reported occurrences and deficiencies are fully analyzed to contributing and root causes	No formal process in place. Some occurrences and deficiencies are analyzed by the operations department, no root cause elements seem to be sought.	A written process should be developed
Risk assessment process expressed in terms of probability of occurrence and level of exposure	Although some risk assessment is being done mostly in reaction to events or reports but no formal structured process is in place to systematically identify and assess all risks.	Develop a Risk Assessment Process.
Risk evaluation criteria tolerable to the organization acceptable levels	No formal criteria in existence	Criteria will need to be developed in the risk assessment process.
Risk control strategies that include corrective and preventive action plans	No systematic process in place.	Risk assessment process should include requirements for risk control strategies and provisions for corrective and preventive action plans.

Item	Status	Action Required
Risk mitigation		
Adequate resourcing to address identified safety concerns	Unable to assess until SMS is implemented	
Communicate findings to staff and implement mitigation strategies	14 CFR part 139 requires this for actions covered by regulation.	The risk assessment process should provide for feedback to staff.
Documentation of corrective and preventive actions	Actions are documented.	
Risk tracking		
Evaluation of effectiveness of corrective and preventive measures	No formal process in place, no evidence that this is being carried out.	A process should be developed.

Item	Status	Action Required
SAFETY ASSURANCE		
Internal Audits		
Departmental audits performed to measure compliance with procedures and processes and meeting of safety goals and objectives	Processes, goals and objectives are not in place, no internal audits are performed.	Safety goals and objectives should be developed. A formal operational internal audit process should be developed.
Evaluation of short and long term effectiveness of safety actions	No formal evaluation is carried out.	Processes describing safety action plans should include evaluation of their short and long term effectiveness.
Periodic review of the organization's safety performance and achievement including SMS.	SMS not in yet place.	Formal system review process to be developed.

Item	Status	Action Required
External Audits		
External audits conducted as part of the independent organization safety oversight	Part 139 Audits are conducted by the FAA	A process should be developed to address external audits of the Safety Management System.
Corrective Action		
Corrective action plans to resolve findings ensuing from audit reports	Corrective action is taken following FAA audit reports as per an established procedure.	Corrective action plans following SMS audits should be established in a documented process.
Documentation		
Identification of regulatory requirements procedure documented and maintained	No database or formal process established.	A process will need to show how regulatory requirements are being identified.

Item	Status	Action Required
Periodic review of regulations, standards and exemptions	No formal process in place.	Development of a process which will ensure that the organization is kept up to date on regulations, standards and exemptions regarding safety issues.
SMS and the interrelationship between all of its elements are described in a consolidated document.	SMS not in yet place.	SMS manual to be developed.
SMS manual to be incorporated by reference into approved documentation	SMS not in yet place.	The SMS manual to be incorporated by reference in the Airport Certification Manual if regulatory requirements warrants.
Records system that ensures the generation and retention of all records necessary to document and support operational requirements.	Records system meets FAR 139 requirements.	The system will need to be complemented to meet all of SMS documentary requirements.
Records system provides control processes necessary to ensure appropriate identification, legibility, storage, protection, archiving, retrieval, retention time, and disposition of records.	There are no control processes. Maximo is an airport maintenance system. IT controls the database. Airfield maintenance is excluded. However a system of checks and balances is in place.	Process to be developed.

Item	Status	Action Required
Quality Assurance		
Establishment of a quality assurance system	No evidence was found that a quality assurance system is in place.	SMS requires a comprehensive quality assurance function covering all SMS elements will need to be developed and established.

Item	Status	Action Required
SAFETY PROMOTION		
Culture		
All employees are responsible for safety	Perception is present.	Will further develop within a safety culture.
Top management leads by example	Varies with individual manager.	
Employees fully trust they have management support	This aspect of the safety culture is perfectible.	
Employees understand that intentional safety breaches will not be tolerated	Well understood.	
There is a non-punitive environment for reporting safety issues	No program in place.	Program to be drafted, consultation with labour leaders conducted and employees well educated on processes involved.

Item	Status	Action Required
Training		
Process to identify training requirements	For OSHA, there is a "Training Circle" which identifies where staff is going to work, and training required. Process to identify other training requirements is not documented. Airfield Operations keeps training records.	A formal process for SMS training to be developed.
Training includes initial, recurrent and update training	Current training programs include those requirements.	SMS training programs should model after them.
SMS training incorporated in indoctrination training on employment		This is to be included in the SMS training process.
There is emergency preparedness and response training for affected personnel	ACM section 325 refers. Personnel are trained within their respective administrative units. All emergency responding groups are coordinated through the Airport Emergency Management Division. Annually these groups come together for either a tabletop or live exercise to test emergency response and the cooperation among operational units.	A review of the emergency preparedness training processes should be undertaken.
Validation of training effectiveness	Emergency Management Division has written critiques of all training exercises.	Process to be developed.

Item	Status	Action Required
Initial (general safety) job-specific training	Training is OSHA oriented.	Program should be modified to include SMS issues
Human and organizational factors included in training requirements	Not included.	Process to be developed.
Organization's safety philosophy, policies, procedures and practices understood	No formal process in place to corroborate.	Process to be developed.
Personnel have knowledge of their role and responsibilities in SMS framework		Formal process to be developed that will verify this requirement.
Communication		
Safety goals and procedures communicated to employees		Safety goals and procedures to be developed and communicated to employees. Processes to achieve this are to be initiated.
Communication to affected employees safety analysis results associated with new operational procedures	OSHA safety analysis information is provided to all division managers by the Airport Safety Manager on a monthly basis.	Need for development of such a process to ensure communication to affected employees of results of safety analysis of safety-critical systems.
Communication of SMS development, implementation and		Processes to be developed to ensure proper communication to all affected staff – Part of Safety

Item	Status	Action Required
updated status on elements		Manager role and responsibilities.
Broad distribution of documents on lessons learned, safety investigations results, case history and experience		Processes to be developed to ensure proper distribution of material from internal and external sources to all affected staff – Part of Safety Manager role and responsibilities.
Safety seminars	Yearly runway incursion seminar is conducted.	Other proposed seminar subjects should be evaluated in safety committees.
Safety letters, notices and bulletins	Posters are distributed.	Other means involving wide distribution should be evaluated.
Dissemination of lessons-learned	Incorporated in training.	
Use of bulletin boards, drop boxes, web-site and e-mail	Bulletin Boards are in use.	Other means to be developed.
Exchange of safety-related information with other airport operators		There are professional organizations that could be solicited (ACI, f) to establish a forum to exchange safety related issues and concerns.
Monitoring of the effectiveness of the communication process		A process to be developed to evaluate the communication process effectiveness.

3.2 Operational Procedural Gap Analysis

3.2.1 Background

The team developed and conducted a survey to determine current operational practices, procedures, and programs that could be used as a basis for an airport SMS. The IATA/JDA Team met with staff from the Airport to identify current Standard Operating Procedures and Programs. The schedule of interviews is attached as Appendix B. A checklist was developed to examine a number of components that focus on the Airports Part 139 certification including:

- Identification of Advisory Circulars that WCAA may be following in order to meet Part 139.
- Identification of operational activities that go above and beyond the requirements of an Advisory Circular or Part 139 (as it relates to Part 139 only).
- Identification of and verification the locations of training records, and who maintains the records as specified in Part 139 (139.301).
- Identification of and verification that those personnel are trained per the requirement in Part 139.303 as it relates to Part 139.
- Identification of how WCAA Operations comply with Part 139.305 – Part 139.311.
- Identification of any safety issues that may not be included in the WCAA Snow and Ice Removal plan as it pertains to part 139.
- Identification of any safety gaps on firefighter operations.
- Identification of who are all the approved Certificate Holders at WCAA who receive hazardous cargo at WCAA. Verify how those Certificate Holders comply with Part 139.321.
- Verification of how WCAA complies with Part 139.323.
- Verification that the emergency action plan is current per Part 139. Verify that personnel are trained as required per Part 139.325
- Verification that there are procedures for the Self-Inspection Plan per Part 139.327.
- Verification that compliance with Part 139.329 as it relates to ground vehicles in movement areas.
- Verification that WCAA complies with its Wildlife management plan as it relates to the safety of the flying public per Part 139.337.
- Verification of airport condition reporting procedures as it relates to Part 139.339.
- Verification of marking and lighting procedures during construction is in compliance within Part 139.341
- Identification of how non-compliance procedures are reported.

3.2.2 Advisory Circulars

The Operational gap analysis includes an identification of Advisory Circulars that WCAA may be following in order to meet Part 139. The identified Advisory Circulars are listed in the following table:

Advisory Circulars relating to Part 139		
Ref	**AC Number**	**AC Title**
139.201	150/5210-22	Airport Certification Manual (ACM)
139.305	150/5380-6B	Guidelines and procedures for maintenance of airport pavement
	150/5380-7A	Airport pavement management program
139.311	150/5340-1J	Standards for airport markings
	150/5370-2E	Operational safety on airports during construction

Advisory Circulars relating to Part 139		
Ref	**AC Number**	**AC Title**
139.309	150/5300-13	Airport design
	150/5220-22A	Engineered Materials Arresting Systems (EMAS) for aircraft overruns
139.313	150/5200-30B	Airport winter safety and operations
139.317	150/5210-6D	Aircraft fire and rescue facilities and extinguishing agents
	150/5220-10D	Guide specification for aircraft rescue and fire fighting vehicles
139.311	150/5340-26A	Maintenance of airport visual aid facilities
139.311	150/5340-30C	Design and installation details for airport visual aids
139.327	150/5200-18C	Airport safety self-inspection
	150/5200-28D	Notices to Airmen (NOTAMS) for airport operators
139.325	150/5200-31A	Airport emergency plan
139.337	150/5200-32A	Reporting wildlife aircraft strikes
	150/5200-33B	Hazardous wildlife attractants on or near airports
	150/5200-36	Qualifications for wildlife biologist conducting wildlife hazard assessments and training curriculums for airport personnel involved in controlling wildlife hazards on airports
	150/5200-37	Introduction to Safety Management Systems (SMS) for airport operators
	150/5210-5C	Painting, marking, and lighting of vehicles used on an airport
	150/5210-7C	Aircraft rescue and firefighting communications
139.317	150/5210-14A	Airport fire and rescue personnel protective clothing
139.319	150/5210-17A	Programs for training of aircraft rescue and firefighting personnel
139.319	150/5210-18	Systems for interactive training of airport personnel
	150/5210-20	Ground vehicle operations on airports
139.317	150/5220-4B	Water supply systems for aircraft fire and rescue protection
	150/5230-4A	Aircraft fuel storage, handling, and dispensing on airports
	150/5320-15	Management of airport industrial waste
139.311	150/5340-18D	Standards for airport sign systems
	150/5380-5B	Debris hazards at civil airports
139.321	121-27	Guide for Air Carriers, Freight Forwarders, and Shippers in Obtaining Information Dealing with the Transportation of Hazardous Materials by Air
	121-38	Reporting Hazardous Materials Discrepancies to the Federal Aviation Administration

Advisory Circulars relating to Part 139		
Ref	**AC Number**	**AC Title**
	121-37	Voluntary Disclosure Reporting Program - Hazardous Materials
139.323	150/5345-27D	Specification for wind cone assemblies
	150/5340-5C	Segmented circle airport marker system
139.341	AC70/7460-1K	Obstruction Marking and Lighting

4. Findings

4.1 Compliance with FAR Part 139

Operational practices, procedures, and programs at the Detroit Metro airport were found to comply with all FAR 139 requirements. This is further confirmed by the FAA inspections of December 2006 and December 2007 which found no discrepancies with FAR Part 139. SMS requires that an organization ensures it meets all regulatory requirements; therefore WCAA already meets this criterion.

4.2 Records and documentation

There are comprehensive records of all required training. These are held by various departments. Usually, the department responsible for carrying out the training holds records. Records may be either both in hard copy or electronic format.

SMS implementation will require Safety Training which will have to be documented in individual training files. WCAA will have to determine whether the existing systems of training records will be augmented with safety training or if a more comprehensive method of maintaining training records should be implemented.

There are presently no written procedures for the management of training records (Filing, access and privacy issues, management of semi-active or inactive records; storage, inventories, and destruction). The existing record management processes will have to be documented, reviewed and standardized as necessary.

Some operational processes are not documented while others have documentation which does not meet SMS requirements (self-inspection, snow and ice control, access control of pedestrians and ground vehicles). SMS requires that all safety-critical processes be reviewed to ensure their adequacy and that the following items be documented:

- Identification and coordinates of responsible agencies
- Responsibilities for the process
- Regulatory and internal requirements
- Description of the process (checklists, tables, reference documents)
- List and description of equipment used
- Description of facilities being inspected or used
- Training requirements
- Any applicable emergency procedures
- Identified Hazards and Risks
- Quality Assurance procedures

4.3 Quality Assurance

We did not find any evidence of any structured quality assurance function. External auditing is carried out by the FAA, but there is no internal audit of operational systems and procedures. This component of SMS will therefore have to be developed in its entirety.

4.4 Reporting

The existing reporting system is reactive in nature: Accident or incident reports are completed by the responding officers (usually from Airfield Operations) and an accident/incident investigation team (from Public Safety) does the report. Incidents and infractions to airport traffic regulations result in disciplinary action.

The existing reactive process will have to be reviewed to ensure investigations identify the root causes of any incident and track any recommended remedial action. Investigators will have to be trained for that purpose and responsibilities assigned for monitoring of remedial actions. The safety policy will have to narrow down and define the circumstances which may result in disciplinary action.

A proactive non-punitive reporting process will have to be developed and implemented. The airport condition reporting process is documented (ACM section 339) and can be integrated into the future SMS. There should however be a regular review of issued NOTAM as part of the QA program to be developed.

4.5 Wildlife Hazard Management Plan (WHMP)

The WHMP is well-documented, training is carried out annually, and the plan is reviewed on an annual basis. This plan can be easily integrated in its present form into the future SMS.

4.6 Emergency Planning

The Emergency Plan (Section 325 and Exhibit 13 of the Airport Certification Manual) was checked against the Emergency Plan Review Checklist included in AC No: 150/5200-31A and found satisfactory (Appendix C). This plan can be integrated into the future SMS, however there should be a review of all emergency training carried out at WCAA to ensure it is complete and avoid any potential overlap.

There are presently a number of plans dealing with various emergencies:

1. Part 139
2. Significant incident response plan (similar but outside scope of 139)
3. Emergency command centre procedures
4. Water emergency plan (facilities)
5. Snow emergency plan (airfield operations) same as snow and ice control plan
6. Evacuation plan
7. Family assistance plan (in collaboration with the airlines)
8. Family assistance center
9. Passenger reception center
10. Unification center

The SMS implementation plan should include a review of all emergency plans with a view to integrate and simplify them as much as possible. There should also be a documented process for the review and coordination of all emergency plans.

5 Conclusions and recommendations of operational gap analysis

WCAA is fully compliant with FAR Part 139.

Processes required ensuring compliance with Part 139 safety requirements are in place but need to be fully documented in order to conform to an effective SMS.

This could be done by identifying, reviewing and documenting existing safety-critical processes within the scope of the WCAA SMS. Quality assurance procedures must be developed to ensure processes are consistently carried out according to instructions and procedures reviewed regularly to adapt to the airport's changing environment.

A proactive reporting system should be implemented to complement the existing reactive reporting system. The reporting system should be non-punitive in nature to foster a free flow of information.

Accident/incident investigators should be trained to identify root causes and recommendations to prevent reoccurrences should be tracked to ensure they are applied consistently and that they are effective.

Appendix A: Literature Review

CAP 642
Airside Safety Management
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Guidance for Developing and Auditing a Formal Safety Management System
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The Management of Safety
Guidance to Aerodromes and Air Traffic Service Units on the Development of Safety Management Systems
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CAP 729
Guidance on Aerodrome Development Procedures
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AC 139-16(0) March 2005
Australian Civil Aviation Safety Authority
Developing a safety management system at your aerodrome

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June 15, 2004

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FAA Office of Airport Safety and Standards
Airport Certification Program
April 6, 2007

Appendix B: Schedule of Interviews

Appendix B: GAP Analysis Interview Schedule

Session	Time	Location	Attendees: Steering Committee	Chris Kaminski	Denine Alfaro	Sandy Altshul	Dan Aman	Sean Brosnan	Craig Carnell	Linda Cox	Angela Croft	Gary Dust	David Garrett	Alex Gonzolez	Bruce Greenberg	Jamie Hinosa	Ron Keesee	Matt Lefluer	Joe Macabe	Tim McDonald	Mike Evans	Mary Muhammad	Mary Lou Posa	Lynda Racey	Joe Reinna	Tom Snell	Leigh Stepaniak	Ken Symanski	Bryan Wagoner	Mary Walker	Steve Wiesner	Barbara White	Kevin Wick	Gary Ancinec (FAA ATC)	Dave Welhouse (FAA ADO)
Monday, March 17th																																		
SMS Introductory Training Session #1	1:00-4:00pm	LC Smith Large Training Room																																
Tuesday, March 18th																																		
SMS Introductory Training Session #2	9:00-noon	Building 703 Training Room																																
Policy Statement/Organizational Structure	12:30 - 2:00pm (Lunch Provided)	Building 703 Training Room	x	x																		x				x								
Traffic and Wind Socks (139.323), Wildlife Hazard (139.337) & Mitigation and Aircraft Index (139.315)	2:00 pm- 3:00 pm	Building 703 Training Room		x											x													x						
Internal Audits and Pedestrians/Ground Vehicles (139.329)	3:00-4:00pm	Building 703 Training Room													x					X									x			x		
Wednesday, March 19th																																		
Training, Communications and Records	8:30-10:00am	Building 703 Training Room		x		x						x					x	x												x		x	x		
Safety Risk Management, Hazard Identification, Risk Assessment, Risk Mitigation and Risk Tracking	noon -2:00pm (Lunch Provided)	Building 703 Training Room		x			x							x	x				x				x 1/			x		x					x	x
ARFF (139.317) and HAZMAT (139.321)	2:00-3:00pm	Building 703 Training Room							x							x					x											x		
Emergency Action Plan (139.325)	3:00-4:00pm	Building 703 Training Room		x	x	x		x																										
Non-Compliance (139.343)	4:00-4:30pm	Building 703 Training Room		x											x																			
Thursday, March 20th																																		
Corrective Action, Documentation, External Audits and Quality Assurance	9:00-10:00am	LC Smith Conference Room #4		x						x					x		x	x	x											x		x		
Proceedures, Safety Objectives, Culture	10:00 - 11:00 am	LC Smith Conference Room #4		x																				x										
Construction (139.341) & Paved Areas (139.305)	1:00-2:00pm	LC Smith Conference Room #4					x								x												x			x				
Personel (139.303)	2:00-2:30pm	LC Smith Conference Room #4													x			x												x				
Self Inspection (139.327)	2:30-3:00pm	LC Smith Conference Room #4													x			x										x						
Verify Operational Requirements (139-319)	3:00-3:30pm	LC Smith Conference Room #4													x			x							x			x						
Condition Reporting (139.339)	3:30-4:00pm	LC Smith Conference Room #4													x													x						x
Markings, Signage & Lighting (139.311) and Snow & Ice Control (139.313)	4:00-4:30pm	LC Smith Conference Room #4					x		x	x		x		x	x				x					x										

1/ Required for first hour (10:00-11:00am)

Appendix C: DTW Airport Emergency Plan Review Checklist

Ref: AC No: 150/5200-31A

Item	Page Ref.	S	U	Remarks
I. Aircraft Incidents and Accidents				
A. Plans				
1. Largest air carrier type	Section 315 ACM	S		Boeing 747-400
2. Identification of response agencies/personnel				
a) Hospitals/Medical Facilities	Para I, page 7	S		Wayne County Homeland and Emergency Management Division
(1) Name	Pages 42 & 43	S		
(2) Location	Pages 42 & 43	S		
(3) Telephone #	Pages 42 & 43	S		
(4) Emergency capacity		S		In triage kit on the rescue equipment
b) Medical personnel (doctors, nurses, etc.)				
(1) Business Address	Page 42	S		Location
(2) Telephone #	Page 42	S		
c) Rescue squad, ambulance service, military installation, government agency				
(1) Name	Page 43	S		
(2) Location	Page 43	S		
(3) Telephone #	Page 43	S		
d) Law Enforcement	Page 44	S		
e) Rescue and Firefighting				
(1) Name	ARFF	S		
(2) Location	DTW	S		
(3) Telephone #	Page 8	S		ETS
f) Principal tenants (including air carriers and Control Tower)				
(1) Name	Page 45	S		
(2) Telephone #	Page 45	S		
g) Equipment inventory				
(1) Surface vehicles/aircraft to transport injured/ deceased	Page 46	S		
(2) Hangars/buildings to accommodate uninjured, and deceased	Page 46	S		
h) Removal of disabled aircraft agencies (responsibilities or capabilities)				
(1) Name	Page 46	S		
(2) Location	Page 46	S		
(3) Telephone #	Page 46	S		
i) Agreements	Page 8	S		Mutual aid, in fire chief office and emergency mgt
j) Communications network	Page 8	S		Emergency Telephone System (ETS)
k) Plan Coordination		S		Emergency

Item	Page Ref.	S	U	Remarks
				management director reports to VP Operation
l) Plan development		S		Emergency management director reports to VP Operation
B. Procedures				
1. Injured and uninjured accident survivors				
a) Marshaling	D Page 23 and 24	S		
b) Transportation	D Page 23 and 24	S		
c) Care	D Page 23 and 24	S		
2. Removal of disabled aircraft	Page 35	S		
3. Emergency alarm systems	Page 22 ACM	S		
4. Airport/Control Tower emergency action coordination	Para IV page 8	S		
5. Notification of support agencies of an aircraft accident				
a) Hospitals/Medical facilities	Para 8 page 20	S		
b) Medical personnel	Para 8 page 20	S		
c) Rescue squad, ambulance services, military installation, government agency	Para 8 page 20	S		
d) Crowd control agencies	Para 12 page 20	S		
e) Disabled aircraft removal agencies	XIX page 35	S		
6. Water rescue				
a) Sufficient water rescue vehicles	P 34	S		Metro Airport Water Rescue Team (MAWRT)
7. Triennial full scale exercise		S		August 2007 Tabletop annual
II. Bomb Incidents				
A. Plans				
1. Designated parking area	Exhibit 13	S		
2. Identification of response agencies/ personnel				
a) Law Enforcement				
(1) Name	Page 27	S		
(2) Location	Page 27	S		
b) Rescue and firefighting				
(1) Name	Pages 26 & 27	S		
(2) Location	Pages 26 & 27	S		
(3) Telephone #	Pages 26 & 27	S		
c) Principal tenants (including air carriers and Control Tower)				Web site
(1) Name				
(2) Telephone #				
(1) Surface vehicles/aircraft to transport injured/deceased				Ambulances (44 communities) and private compagnies
(2) Hangars/buildings to accommodate uninjured, injured, and deceased				Nomads hangar
e) Agreements	Page 8	S		

Item	Page Ref.	S	U	Remarks
f) Communications Network				
III. Structural Fires				
A. Identification of response agencies / personnel				
1. Law enforcement				
a) Name				
b) Location				
2. Rescue and firefighting				
a) Name	Page 29	S		
b) Location	Page 29	S		
c) Telephone #	Page 29	S		
5. Agreements	Page 8	S		
IV. Natural Disasters				
A. Plans				
1. Identification of response agencies / personnel	Page 29	S		
a) Law enforcement				
b) Name				
c) Location				
a) Name				
b) Location				
c) Telephone #				
5. Agreements	Page 8	S		
V. Hazardous Materials				
A. Plans	XIII page 29			
1. Identification of response agencies / personnel				
a) Law enforcement	Page 29	S		
b) Name	Page 29	S		
c) Location	Page 29	S		
2. Rescue and firefighting				
a) Name	Page 29	S		
b) Location	Page 29	S		
c) Telephone #	Page 29	S		
3. Principal tenants (including air carriers and Control Tower)				
a) Name	Page 29	S		
b) Telephone #	Page 29	S		
5. Agreements	Page 8	S		
6. Communications network	Page 29	S		
VI. Sabotage, hijack incidents, and other unlawful interferences with operations	XIV and XV page 30			
A. Plans				
1. Identification of response agencies / personnel				
a) Law enforcement	Page 30	S		
b) Name	Page 30	S		
c) Location	Page 30	S		
2. Rescue and firefighting				
a) Name	Page 30	S		
b) Location	Page 30	S		
c) Telephone #	Page 30	S		
5. Agreements	Page 8	S		
6. Communications network	Page 31	S		
B. Procedures				

Item	Page Ref.	S	U	Remarks
VII. Failure of power for movement area lighting	XVII Page 33	S		
A. Plans	XVII Page 33	S		
B. Procedures	XVII Page 33	S		
VIII. Water Rescue Situations	XVIII Page 33			
A. Plans	Pages 33 to 35	S		
B. Procedures	Pages 33 to 35	S		
IX. Crowd Control	XVI page 33	S		
A. Plans	XVI page 33	S		
B. Procedures	XVI page 33	S		