DTW Safety Management System Manual

-DRAFT-

DETROIT METRO • WILLOW RUN
WAYNE COUNTY AIRPORT AUTHORITY

May 12, 2008

In Association with Jacobsen/Daniels Associates

Version No:	1.01
Status	Draft
Controlled Copy	

International Air Transport Association
800 Place Victoria, B.P. 113
Montreal, Quebec
Canada H4Z 1M1
Tel: +1 (514) 874 0202
Fax: +1 (514) 874 2662
www.iata.org

Table of Contents Page

Proprietary Notice

The information furnished in this document shall not be disclosed, duplicated or used in whole or in part for any purpose other than to evaluate the document. If a contract is awarded subsequent to this offer as a result of, or in connection with, the submission of such information, the Client shall have the right to duplicate, use or disclose this information to the extent provided in the contract.

Document Revision and Control History

Version Number	Date	Description
1.01		
1.02		
1.03		
1.04		
1.05		

		Signature	Date
Approved			
Reviewed			
Reviewed			
Approved			
Approved			

Definitions

Accident – An unplanned event or series of events that results in death, injury or damage to, or loss of, equipment or property.

Accountable Executive – Single, identifiable person within the organization who will assume full accountability for the SMS. The Accountable Executive must have adequate control over financial and human resources to respond to organizational safety needs.

Audit – Formal reviews and verifications to evaluate conformity with policy, standards and contractual requirements. It can be an internal audit, when conducted by, or on behalf of the organization being audited, or an external audit, when conducted by an entity outside of the organization being audited.

Corrective Action – Action to eliminate or mitigate the cause or reduce the effects of a detected nonconformity or other undesirable situation.

Gap Analysis – Identification of existing safety components, compared to SMS program requirements. Gap analysis provides an operator with an initial SMS development plan and a roadmap for compliance.

Hazard – Any existing or potential condition that can lead to injury, illness or death to people; damage to or loss of a system, equipment or property; or damage to the environment. A hazard is a condition that is a prerequisite to an accident or incident.

Incident – A near-miss episode, malfunction or failure without accident-level consequences that has a significant chance of resulting in accident-level consequences.

Likelihood – The estimated probability or frequency, in quantitative or qualitative terms, of a hazard's effect.

Line Management – Management structure that operates the production/operational system.

Oversight – A function that ensures the effective promulgation and implementation of safety standards, requirements, regulations and associated procedures. Safety oversight also ensures that the acceptable level of safety risk is not exceeded in the air transportation system.

Procedure – A specified way to carry out an activity or a process.

Risk Assessment – Assessment of the system or component to compare the achieved risk level with the tolerable risk level.

Records – Evidence of results achieved and activities performed. In this context, it is distinct from documentation because records refer to SMS outputs.

Safety Assessment – Systematic and comprehensive evaluation of a system to check whether the safety requirements are met.

Safety Assurance – SMS process management functions that systematically provide confidence that organizational products/services meet or exceed safety requirements.

Safety Culture – The product of individual and group values, attitudes, competencies and patterns of behavior that determine the commitment to, and the style and proficiency of the organization's management of safety. Organizations with a positive safety culture are characterized by communications founded on mutual trust, by shared perceptions of the importance of safety, and by confidence in the efficacy of preventive measures.

Safety Management System (SMS) – The formal, top-down business-like approach to managing safety risk. It includes systematic procedures, practices, and policies for the

management of safety (including safety risk management, safety policy, safety assurance, and safety promotion).

Safety Objective – Safety goals or desired outcomes, which are typically measurable.

Safety Policy – Defines the fundamental approach to managing safety that is to be adopted within an organization. Safety policy further defines the organization's commitment to safety and overall safety vision.

Safety Promotion – Combination of safety culture, training, and data-sharing activities that support the implementation and operation of an SMS in an organization.

Safety Risk – Composite of predicted severity and likelihood of the potential effect of a hazard. As an example, the possibility of an overshoot by an aircraft landing on an icy runway (icy runway is the hazard) would be considered a safety risk.

Safety Risk Management (SRM) – A formal process within the SMS composed of describing the system, identifying the hazards, assessing the risk, analyzing the risk, and controlling the risk. The SRM process is embedded in the operational system; it is not a separate/distinct process.

Severity – The consequence or impact of a hazard in terms of degree of loss or harm.

System(s) – An integrated set of elements that are combined in an operational or support environment to accomplish a defined objective. These elements include people, hardware, software, firmware, information, procedures, facilities, services and other support facets.

Top Management – The person or group of people that directs and controls an organization. Sometimes this is also referred to as senior management and may be the Chief Executive Officer, Board of Directors or Administrator.

Introduction

The application of a methodical, logical, and well-defined safety program allows an organization to strike a practical and efficient balance between safety and operational management. The forecasted growth in air transportation demands new guidelines and measures to achieve a continuing improvement in the level of aviation safety. The use of Safety Management Systems (SMS) at airports can help facilitate this effort by increasing the likelihood that airport operators will perceive and rectify safety problems before such problems result in an aircraft accident or incident. In November 2005, the International Civil Aviation Organization (ICAO) amended Annex 14, Volume I (Aerodrome Design and Operations), that requires member states to have certificated international airports establish an SMS plan. The FAA supports coordination of international standards and expects to realize the use of SMS at U.S. airports to meet the objective of the ICAO standards in a way that harmonizes existing airport safety regulations in 14 CFR Part 139, *Certification of Airports*.

The FAA has been coordinating a pilot program to evaluate the implementation of SMS at airports of varying size and complexity. The objective of the pilot program is to allow airports and the FAA to gain experience establishing airport-specific SMS plans that are customized for the individual airport. Additionally, this experience will provide SMS benchmarking that the FAA can utilize as it considers whether to incorporate SMS into Title 14 CFR- Part 139.

The SMS Manual should not simply apply guidance that has been developed in other countries to comply with their safety oversight rules, or duplicate SMS plans of airports subject to those rules. Rather, the SMS manual should complement the existing U.S. 14 CFR Part 139. In other words, the SMS manual should identify the elements of the airport operator's existing practices and guidance materials which currently meet and do not meet the SMS requirements, and provide direction as to how these practices and documents will be revised in the future for consistency with the SMS plan.

There are six components to the SMS manual, each of which are further broken down into sub-categories for the ease of accessing relevant information. The six components are as follows:

1. Scope and Applicability - Requirements for a product/service provider's Safety Management System.
2. Definitions - Contains terminology listed in the manual,
3. Policy - Includes General Requirements; Safety and Quality Policy; Safety Planning; Organizational Structure and Responsibilities; Compliance with Legal and Other Requirements; Procedures and Controls; Emergency Preparedness and Response; and Documentation and Records Management.
4. Safety Risk Management - Details System and Task Analysis; Identify Hazards; Analyze Safety Risk; Assess Safety Risk; and Control Safety Risk.
5. Safety Assurance and Internal Evaluation - Includes General Requirements; System Description; Information Acquisition; Analysis of Data; System Assessment; Preventive/Corrective Action; and Management Reviews.
6. Safety Promotion - Includes Safety Culture, Communication and Awareness; Personnel Requirements; Training; and Safety Lessons Learned.

1.0 Policies

1.1 Safety Policy

It is the goal of the Wayne County Airport Authority (WCAA) to maintain aviation safety at a high level at DTW. In order for WCAA to sustain this goal, we will be implementing a Safety Management System (SMS) which will be integrated into many aspects of airport operations, business and management practices as they relate to safety critical systems. This program requires all personnel to recognize that, with the implementation of a systematic approach to safety management, safety problems can be detected and corrected before they result in an aircraft incident or accident. We are committed to operating and managing our airport to ensure that the level of risk of aviation incidents and accidents is reduced and maintained to the lowest practicable level. While management is responsible for developing and organizing the program, its success will depend on the involvement of staff at all levels of the organization.

2.0 Organizational Structure

The effective management of safety requires a clear delineation of all lines of authority within the organization. There must be a clear understanding of the accountability, responsibility and authority of all individuals involved in the system. The organizational structure will be disseminated throughout the organization, thereby promoting a common understanding of everyone's role in the WCAA SMS.

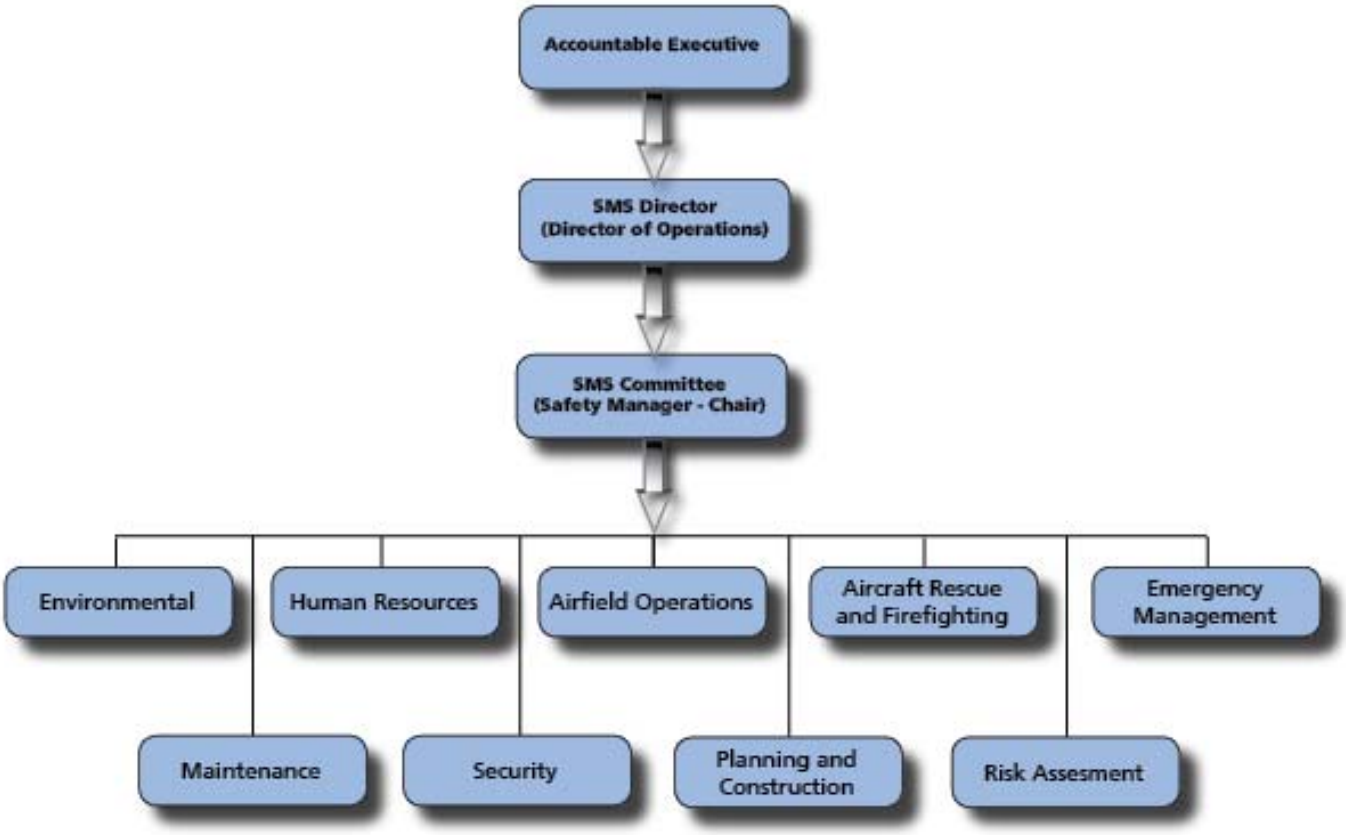
Management's role, responsibilities and accountabilities for the SMS should be well defined and the lines of authority clearly understood. Management responsibilities broadly are as follows:

a. The accountable executive is accountable for establishing and maintaining the SMS;
b. The manager in charge of each functional area, Airport Operations for example, is responsible for the implementation of SMS within his/her functional area;
c. The manager in charge of each functional area is responsible for correcting organizational deficiencies identified in the system; and
d. Everyone in the organization is responsible for safety.

The manager responsible for a functional area is responsible for managing safety of operations because he/she has the knowledge and expertise to recommend effective, corrective and preventive actions and has the authority to assign the appropriate resources where required.

Each manager must assume responsibility for safety within his/her own area of responsibility. In this way, he/she is involved in the "safety" process and is accountable for issues that arise in his/her functional area.

The safety organization chart of the WCAA is as follows:



2.1 Accountable Executive

The main responsibility of the Accountable Executive is to ensure the safe and efficient operation of the airport on a daily basis. This includes supporting all aspects of the Safety Management System and ensuring the successful completion of the SMS implementation plan.

Along with a successful implementation comes the role of ensuring that a shift in culture takes place in the organization; this new culture requires a focus on considering the safety implications of every decision and activity of the WCAA.

The Accountable Executive must ensure that all airport activities are functioning within the safety policy and safety manual or he/she must take the necessary actions to bring them into compliance. Ultimately, the Accountable Executive has the responsibility and authority to ensure that safety policies and operational procedures are being followed.

The Accountable Executive is responsible for the overall budget of the Safety Management System and will allocate funds as he/she sees fit in order to maintain the highest practicable level of safety. The Accountable Executive will ensure that all work required by the SMS can be financed and carried out to the standard required.

Accountable Executive responsibilities include:

- Full executive control over the organization's SMS-related activities;
- Ensuring compliance with all relevant requirements and regulations of the FAA;
- Commitment to the successful completion of the SMS implementation plan;
- Raising awareness of emerging trends and safety issues;
- Allocation of resources to improve safety, i.e. budget, personnel and time;
- Remaining accessible and dedicated to making the changes necessary to enhance safety;
- Accountability for safety throughout the organization and remain active and fully involved in all SMS-related safety activities and reviews; and
- Implementing a safety culture.

2.2 SMS Director

The SMS Director is responsible for all SMS activities and manages the Safety Manager. The SMS Director insures an interdivision linkage for cross-functional safety issues, and provides risk assessment and data analysis expertise to the functional managers. The SMS Director, or by direction through the Safety Manager, will provide data directly to the appropriate manager regarding major safety issues identified through the SMS. The responsibility for informing the Accountable Executive of major safety deficiencies identified within their area of responsibility remains with the appropriate Division or Department head. While the SMS Director may be involved in discussions regarding possible corrective action, it is the responsibility of the Division or Department head to determine the corrective action and to ensure the outcome is monitored and evaluated.

2.3 Safety Manager

The Safety Manager (SM) is responsible for providing guidance for the operation of the company's Safety Management System under the direction of the Safety Director. The Safety Manager must interact with operational personnel, senior managers and division heads throughout the organization.

The Safety Manager is responsible for developing and recommending rules and policies designed to promote safety and hazard awareness throughout the organization. In addition to maintaining the safety policy and safety manual, the SM will be responsible for monitoring that all proper safety training is conducted and documented in accordance with the safety manual. The Safety Manager does not have the authority to overturn operational decisions.

In order to ensure that all aspects of the safety policy and plan, as well as all necessary training is being followed and documented correctly, the Safety Manager is responsible for conducting periodic safety audits.

The Safety Manager's responsibilities will also include:

- Being the focal point for the development and maintenance of an effective SMS;
- Chairing the SMS Committee;
- Providing expertise and support to line managers
- Tracking the SMS implementation plan;
- Facilitating hazard identification and risk management;
- Monitoring the effectiveness of corrective actions;
- Providing periodic reports on safety performance to the SMS Director, Accountable Executive or line managers as required;
- Maintaining safety documentation;
- Managing the cost elements of the SMS;
- Planning and organizing staff safety training; and
- Providing independent advice on safety measures.

2.4 SMS Committee

The SMS Committee is chaired by the Safety Manager. It provides a forum for discussing safety-related issues from a cross-functional perspective and may lead to the inclusion of issues that look at safety from a broader perspective. Frequently, safety issues are not limited to one specific area and require inputs and expertise from a variety of different fields. The SMS Committee provides a forum for this dialogue and can be utilized to assess the effectiveness of the system from a "big-picture" perspective. The SMS Committee will review safety achievements and broadcast safety information.

The SMS Director will coordinate and provide administrative assistance to the SMS Committee. The SMS Committee is responsible for:

- Monitoring the organization's operational safety performance against the safety goals and objectives;
- Monitoring that any necessary corrective action is being taken in a timely manner;

- Monitoring the effectiveness of the organization's safety management processes which give effect to the declared WCAA policy of safety as the top priority;
- Monitoring the effectiveness of the WCAA quality assurance processes which independently validate the organization's safety performance; and
- Monitoring the effectiveness of safety oversight of sub-contracted operations carried out on behalf of the organization.

2.5 SMS Committee Members

SMS Committee members are responsible to their relevant functional areas. Each member is responsible for that function's contribution to the development and the maintenance of the organization's SMS. Membership may be a manager or supervisor from within the appropriate functional area.

Each member is responsible to:

- Oversee operational safety within the functional area;
- Ensure that any necessary corrective action is taken in a timely manner;
- Act as a liaison, report to and accept strategic direction from the SMS Committee;
- Ensure that hazard identifications and risk assessments are carried out as appropriate with such involvement of staff as may be necessary to build up safety awareness;
- Ensure that satisfactory arrangements exist for safety data capture and taking action on employee feedback;
- Ensure that suitable safety performance indicators are developed and regularly reviewed for the safety-critical systems;
- Ensure that quality assurance is carried out so as to maximize its direct contribution to safety performance and that full assistance is given to the SMS Director/Safety Manager in the event of a

requirement to carry out a safety audit or review of any aspect of the functional area;

- Convene such meetings or briefings as may be necessary to ensure that effective opportunities are available for all employees to participate fully in safety management; and
- Ensure that adequate investigation of safety events/issues takes place and that safety reviews are then conducted and any actions arising are tracked to completion to guarantee that appropriate safety, emergency and technical training of personnel is carried out to meet or exceed minimum regulatory requirements.

2.6 Department Heads/Managers

Department Heads/Managers will be responsible for working with and providing safety-related data and information to the SMS Committee members.

3.0 Procedures

3.1 Identification of Safety-Critical Systems

The first step in implementing a SMS is to determine what aspects of airport operations are within the scope of the system. The FAA Pilot Study Participant's Guide[1] states that "The importance of developing an SPM is to define where 14 CFR Part 139 and associated FAA guidance material do or do not include all of the requirements of an SMS." In other words, the SPM should identify "gaps" between the Airport Certification Program and the SMS developed for the airport. The scope of the airport SMS must be clearly defined to ensure clear assignments of responsibilities without overlap with other safety programs (such as OSHA). SMS must also, at least in its initial version, have a direct relationship with the existing airport certification requirements.

While it is customary to divide airport operations into physical areas such as movement and non-movement areas, 14 CFR Part 139 requirements sometimes straddle such physical boundaries. For example, the provision and maintenance of markings, signs and lighting encompasses both movement and non-movement areas. Similarly, wildlife control must include non-movement areas, and sometimes extend to land outside the airport boundary.

In order to resolve potential confusion and clearly establish the SMS relationship with 14 CFR Part 139, airport activities have been broken down into "Safety-Critical Systems." The criteria used to identify such systems were as follows. A list of safety-critical systems, the corresponding CFR requirement(s) and Advisory Circulars is found in Table 3.1 below.

a. There should be as little overlap as possible between systems;
b. They can be clearly defined;
c. They are under the control of the airport authority; and
d. There is a direct relationship with 14 CFR Part 139 requirements.

[1] Safety Management System (SMS) Pilot Study Participant's Guide, April 6, 2007.

Table 3.1: Safety-Critical Systems

System	Sub-Systems	FAR Reference	Advisory Circular
Personnel	Staffing levels Resources	139.303	
Maintenance of paved areas		139.305	150/5380-6B
Safety areas	Provision and maintenance	139.309	
Provision and maintenance of markings, signs and lighting	Markings Signs Lighting Lighting interference	139.311 139.323	150/5340-1J 150/5340-26A 150/5340-18D 150/5345-27D 150/5340-5C
Snow and ice control		139.313	150/5200-30B
Emergency planning ARFF	Emergency plan Operational requirements Index determination Equipment and agents	139.325 139.319 139.315 139.317	 150/5210-6D 150/5220-10D 150/5200-31A 150/5210-7C 150/5210-14A 150/5210-17A 150/5220-4B
Fueling operations oversight		139.321	150/5230-4A
Self-inspection program		139.327	150/5200-18C
Access airside	Training of personnel Control of pedestrian and ground vehicles Fencing Entry to movement area	139.303 139.329 139.335 139.335	 150/5210-20
Control of obstacles	Obstacle control within airport boundaries Monitoring building heights in OCZ Protection of NAVAIDs Identifying, marking and lighting construction and other unserviceable areas	139.331 139.333 139.341	 AC70/7460-1K
Public protection	Protection from jet blast	139.335	
Wildlife management	Wildlife mitigation Wildlife hazard assessment	139.337	150/5200-32A 150/5200-36 150/5200-33B
Reporting		139.339 139.343	150/5200-28D
Low visibility procedures	Safety Movement Control Guidance Systems (SMGCS)		150/120-57A
Airport planning			150/5300-13
Construction Project Management			150/5370-2E
Control of debris (FOD)			150/5380-5B

It should be noted that certain aspects of the FAR 139, FAR 139.301 (Records) and FAR 139.303 (Personnel), are not singled out as safety-critical systems. Furthermore, some critical systems are not directly related to FAR 139 paragraphs.

Records and personnel are not singled out as a system because they are a vital part of each safety-critical system and represented as components of each.

Three (3) of the safety-critical systems were included because of their significance in managing high-risk areas although they are not related to a specific FAR requirement. They are also identifiable as well-defined systems subject to specific advisory circulars. These are:

a. Low-visibility procedures;
b. Control of debris (FOD); and
c. Planning and construction.

While not all aspects of the non-movement areas are included in the safety-critical systems identified, the WCAA will continue to enforce a number of airfield operations standard operating procedures to ensure the remaining apron activities are conducted in a safe manner.

The identification of safety-critical systems will facilitate the determination of the scope of processes that will be subjected to risk management as well as the assignment of specific responsibilities to managers.

(SMS will be phased in gradually beginning with airfield operations. At a later stage in the implementation plan, these systems may be integrated into the WCAA SMS.)

3.2 References to Written Procedures

Written procedures are required at two levels: To describe how the WCAA manages its SMS and to document the operational procedures applicable to safety-critical systems. The SMS is based on and directed towards FAR Part 139 while the procedures are founded on what Part 139 covers. This is accomplished by using the various Airfield Operations Division standard operating procedures (SOP) as a reference. Table 3.2, found below, lists the procedures applicable to the management of the WCAA SMS, the entities responsible for developing and monitoring the procedure, and where the procedure is described.

Table 3.2: Procedures to Manage SMS		
Procedure Description	**Responsible Entities**	**Reference**
Conducting policy review	Accountable Executive	Safety Manual
Setting management responsibilities	HR/Safety Manager	Safety Manual Job Descriptions
Risk management procedures	Safety Manager	Safety Manual
Reporting systems	Safety Manager	Safety Manual
Training	Line Manager/HR	Training Plans
Auditing of safety-critical systems	Safety Manager	Safety Manual
Auditing of SMS	Safety Manager	Safety Manual
Event investigations	Airfield Operations	SOP 1020
Documentation and data control	Line Manager	Safety Manual/SOP

Table 3.3 lists the procedures applicable to safety-critical systems or sub-systems, the entities responsible for developing and monitoring the procedure, and where the procedure is described. Procedures not presently available are identified as To Be Developed (TBD).

Table 3.3: Safety-Critical System Procedures			
Safety-Critical System	**Sub-System**	**Responsible Entity**	**Operations Reference**
Personnel	Resourcing, qualifications, equipment,	Director Airfield Operations	SOP 0220
	Training, training records	Training Manager	SOP 0220
Maintenance of paved areas	Maintenance, repair and cleaning	Director of Airfield Operations	SOP 1080
Safety areas	Provision	Director of Airfield Operations	SOP 1020
	Maintenance	Director of Airfield Operations	SOP 1010 (opening runways) SOP 1240 (self-inspection)
Provision and maintenance of markings, signs and lighting	Markings	Director of Airfield Operations	SOP 1020
	Signs	Director of Airfield Operations	SOP 1020
	Lighting	Director of Airfield Operations	SOP 1020 SOP 2030 SOP 2040
	Lighting interference	Director of Airfield Operations	TBD
Snow and ice control	Snow and ice control plan	Director of Airfield Operations	Snow and Ice Control Plan SOP 2140 SOP 2150 SOP 2160 SOP 2170 SOP 2180 SOP 2190
Emergency planning ARFF	Index determination	Fire Chief	ACM
	Equipment and agents	Fire Chief	ACM
	Operational requirements	Fire Chief	ACM

Table 3.3: Safety-Critical System Procedures

Safety-Critical System	Sub-System	Responsible Entity	Operations Reference
	Emergency Plan	Fire Chief	ACM - DTW Emergency Plan
Fuelling operations oversight		Fire Chief	SOP 1290
Self-inspection program	Inspection procedures	Director of Airfield Operations	SOP 1240
	Inspection records	Senior Airfield Operations Managers	SOP 1240
Access airside	Training of personnel	Airport Operations Training Unit	SOP 1020 SOP 1140
	Control of pedestrian and ground vehicles	Director of Airfield Operations	SOP 1100 SOP 1160 SOP 1140 SOP 1150 SOP 1230 SOP 1260 SOP 1270 SOP 1280
	Fencing	Director of Airfield Operations	SOP 1050[2] SOP 1090
	Access to safety and movement area	Director of Airfield Operations	SOP 1090 SOP 1200 SOP 1250
	Non-compliance	Director of Airfield Operations	SOP 1110 SOP 1170
Control of obstacles		TBD	TBD
Public protection	Protection from jet blast	Director of Airfield Operations	SOP 1280 (bicycles and motorcycles)

[2] Inspection of fences

Table 3.3: Safety-Critical System Procedures			
Safety-Critical System	**Sub-System**	**Responsible Entity**	**Operations Reference**
Wildlife management	Wildlife hazard assessment	Environmental Program Administrator	Wildlife Hazard Management Plan
	Wildlife mitigation	Environmental Program Administrator	Wildlife Hazard Management Plan
	Wildlife response	Airfield Operations Director	SOP 1350
Reporting	Airport condition reporting	Airport Operations Specialist	SOP 1210
	Noncompliant conditions	TBD	ACM
Low-visibility procedures		SMGCS working group	DTW SGMCS Plan SOP 2060 SOP 2070
Control of debris (FOD)		TBD	TBD

Each procedure must identify who has authority over its contents (development, amendments) and who is responsible for ensuring it is carried out consistently.

3.3 Documentation

The WCAA safety-related documentation is composed of the following:

1. Safety manual and SMS implementation plan;
2. Reporting system(s) documentation;
3. Hazard identification and risk management documentation;
4. Quality assurance documentation;
5. FAA requirements and Airport Certification Manual (ACM);
6. Airfield Operations documentation, including SOP; and
7. Training records.

As part of the annual audit of the WCAA SMS, there will be a review of the safety management system documentation to ensure its continuing suitability, adequacy and effectiveness. The audit will also verify that all approved changes to WCAA safety documentation have been implemented.

As a rule, all documented record management procedures shall ensure the generation and retention of all records necessary for documenting and supporting operational requirements, and shall be in accordance with applicable regulatory requirements. They shall also provide the control processes necessary to ensure appropriate identification, legibility, storage, protection, archiving, retrieval, retention time, and disposition of records.

Records should be documented and kept for a period of five years, with the exception of reports from the proactive and non-punitive reporting systems that should be kept for an indefinite period of time.

3.3.1 Safety Manual and SMS Implementation Plan

The Safety Manager is responsible for the maintenance, review and revision of the safety manual, which describes the safety management system and the interrelationship between all of its elements.

The Safety Manager is also responsible for the maintenance of the SMS implementation plan. Once the implementation plan has been completed, the Safety Manager is responsible for the tracking of all corrective actions resulting from audits of the WCAA SMS.

The safety manual and SMS implementation plan will contain distribution lists of document holders deemed appropriate by the Safety Manager.

Amendments to the safety manual and SMS implementation plan will be recommended by the SMS Committee for approval by the SMS Director and Accountable Executive. The Safety Manager is responsible for ensuring amendments are inserted and implemented.

3.3.2 Reporting System(s) Documentation

All reports from the proactive non-punitive reporting system and the accident/incident reporting system will be recorded on an electronic database maintained by the Safety Manager.

Due to the potentially sensitive nature of this information, the SMS Committee will determine who will have access to the database. Release of any information to outside organizations will have to be approved by the Accountable Executive, who may then consult with the WCAA legal department.

Since reporting system documentation will be required for long-term trend analysis, it will be preserved indefinitely.

The procedures developed by the Safety Manager for this purpose will be documented and inserted into the safety manual.

3.3.3 Hazard Identification and Risk Management Documentation

The hazard identification and risk management documentation consists of all records generated as a result of the risk management process described in Chapter 4 of this safety manual.

This documentation will be preserved by whoever is responsible for carrying out the risk management process and will be made available upon request to the Safety Manager.

The archiving or destruction of any hazard identification and risk management documentation will be authorized by the Safety Manager. Release of any information to outside organizations must be approved by the Accountable Executive, who may then consult with the WCAA legal department.

The procedures developed for this purpose will be documented by the Safety Manager and inserted into the safety manual.

3.3.4 FAA Requirements and ACM

FAA Part 139 requirements consist of all regulatory material applicable to WCAA operations (FAR, Advisory Circulars, letters of corrections, exemptions, etc.) and are reflected in the ACM.

While copies of documents may be distributed as determined by the Accountable Executive in consultation with other divisions, a reference library of all regulatory material will be held in a document center managed by Airport Operations. The reference library will maintain master copies up to date by inserting all necessary amendments and distributing such amendments to all document holders as per a master distribution list. The reference library manager will ensure all amendments are duly received and inserted by document holders.

Airport Operations will ensure it receives all FAA notices of proposed regulations and forwards same to the appropriate division(s) for review and comments. Consolidated WCAA representation to the FAA will be coordinated by the Director of Airport Operations.

The procedures developed by Airport Operations for this purpose will be documented and inserted into the SMS Manual.

3.3.5 Quality Assurance Documentation

The QA documentation consists of all documents produced as a result of

a. Safety surveys;
b. Internal and external safety audits;
c. Safety trend analysis; and
d. Tracking of corrective and preventive action(s);

The Safety Manager will keep records of all the above activities. These records consist of at least the following documents:

a. Safety survey questionnaires and results;
b. Internal and external audit plans;
c. Audit findings and supporting documentation;
d. Final audit reports;
e. Action plans to implement recommendations and tracking thereof; and
f. Results and recommendations from trend analysis.

3.3.6 Airfield Operations Documentation

The Division of Airfield Operations shall transmit information, instructions, guidelines, and policies and procedures through the use of manuals, memoranda and other forms of correspondence. Management of Airfield Operations documentation will be as per Section 0320 of the Airfield Operations Procedures Manual.

3.3.7 Training Records

Training records consist of records required by FAR 139.301 and records of SMS training to enable the implementation of the safety manual (hazard identification, risk management, SMS, etc.).

Training records required by FAR 139.301 will be maintained by the appropriate line managers who are responsible for ensuring staff meets regulatory requirements.

SMS training records will be maintained by the Safety Manager on a database accessible to line managers.

The implementation plan will require an evaluation of current training record management practices by the WCAA to make recommendations for streamlining and use of suitable digital processes to maximize efficiency and effectiveness. The resulting documented procedure will be inserted into the safety manual.

4.0 Risk Management

To err is human. Errors are the inevitable and usually acceptable price human beings must pay for their remarkable ability to cope with very difficult informational tasks quickly and, more often than not, effectively. In conditions where “machines botch up, humans degrade gracefully” (Jordan, 1963).[3]

4.1 Introduction

Safety management is the means by which an organization controls the processes that could lead to hazardous events in order to ensure that the risk of harm or damage is kept to an acceptable level. Safety assessment, which is one of the core functions of a Safety Management System, provides a mechanism for identifying potential hazards and finding ways to control the risk associated with them.

Risk management is the identification, analysis and elimination (and/or mitigation to an acceptable or tolerable level) of the risks that threaten the viability of an organization. Risk management facilitates the balancing act between assessed risks and viable risk mitigation.

4.2 Determining the Causes of Incidents and Accidents

4.2.1 The Human Factor

In aviation and elsewhere, human error is one of a long-established list of ‘causes’ used by the press and accident investigators. But human error is a consequence, not a cause. Errors are shaped and provoked by upstream workplace and organizational factors. Identifying an error is merely the beginning of the search for causes, not the end. Just as much as the disaster that may follow it, an error is something that requires an explanation. Only by understanding the context that provoked the error can we hope to limit its recurrence.

[3] James Reason, The Human Error 1990

Although deliberate wrongdoing attracts warnings, sanctions, threats and exhortations not to do it again, these have little or no effect upon the error-producing factors, and so human errors continue to be involved in incidents and accidents.

4.2.2 Organizational and Individual Accidents

There are in fact two types of accidents: *organizational accidents* and *individual accidents.* Organizational accidents have multiple causes involving many people operating at different levels of the organization and can have devastating effects on uninvolved persons, assets and the environment. Individual accidents are ones in which a specific person or group is often both the agent and the victim of the accident. SMS concentrates on the organizational accidents.

4.2.3 The Organizational Accident

Organizational accidents are difficult events to understand and control. They occur very rarely and are hard to predict or foresee. Quite apart from the human costs in deaths and injuries, there are very few organizations that can survive the fallout of a major accident of this kind.

Organizational accidents may be truly accidental in the way in which the various contributing factors combine to cause the bad outcome, but there is nothing accidental about the existence of these precursors, nor in the conditions that created them. The difficulty, however, lies in finding the appropriate level of description.

All organizational accidents entail the breaching of the barriers and safeguards that separate damaging and injurious hazards from vulnerable people or assets—collectively termed losses. The necessary condition for an organizational accident is the rare conjunction of a set of holes or

failures in successive defenses, allowing hazards to have an impact on people and assets.

No one defensive layer is ever entirely intact. Each one possesses gaps and holes created by combination of active failures (errors and violations committed by frontline personnel) and latent conditions (the consequences of top-level decisions having a delayed-action effect upon the integrity of various defensive layers).

Figure 4.1 shows an accident trajectory passing through corresponding holes in the layers of defenses, barriers and safeguards. The holes represent active or latent failures. This illustration is known as the Swiss Cheese Model developed by James Reason.

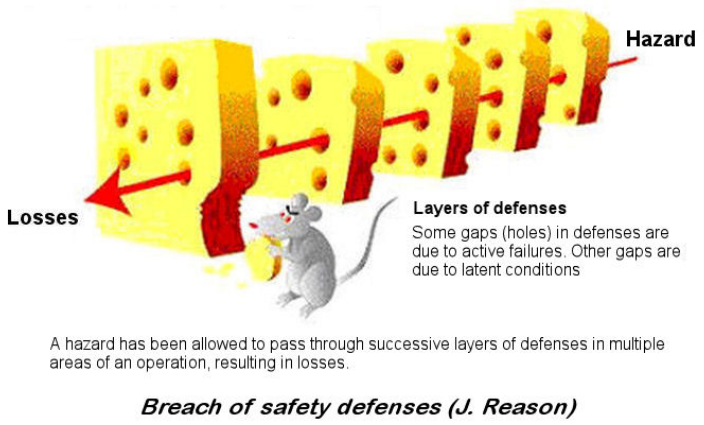


Figure 4.1 – The accident trajectory

4.3 Risk Management Process

The aviation industry faces a diversity of risks every day; many of these challenge the airport operator in providing facilities and services (safety critical systems) at the most acceptable possible risk level. Not all risk can be eliminated, nor are all conceivable risk mitigation measures economically feasible. The risks and costs inherent in aviation necessitate a rational process or

decision-making. This process is called *Risk Management* and is shown in Figure 4.2; it involves three (3) basic steps:

a. Hazard and risk identification;

b. Risk assessment and;

c. Risk mitigation and tracking.

Within risk assessment, consideration is given to both the likelihood and consequence of an adverse consequence of a risk; in other words, the loss potential is always determined using both factors.

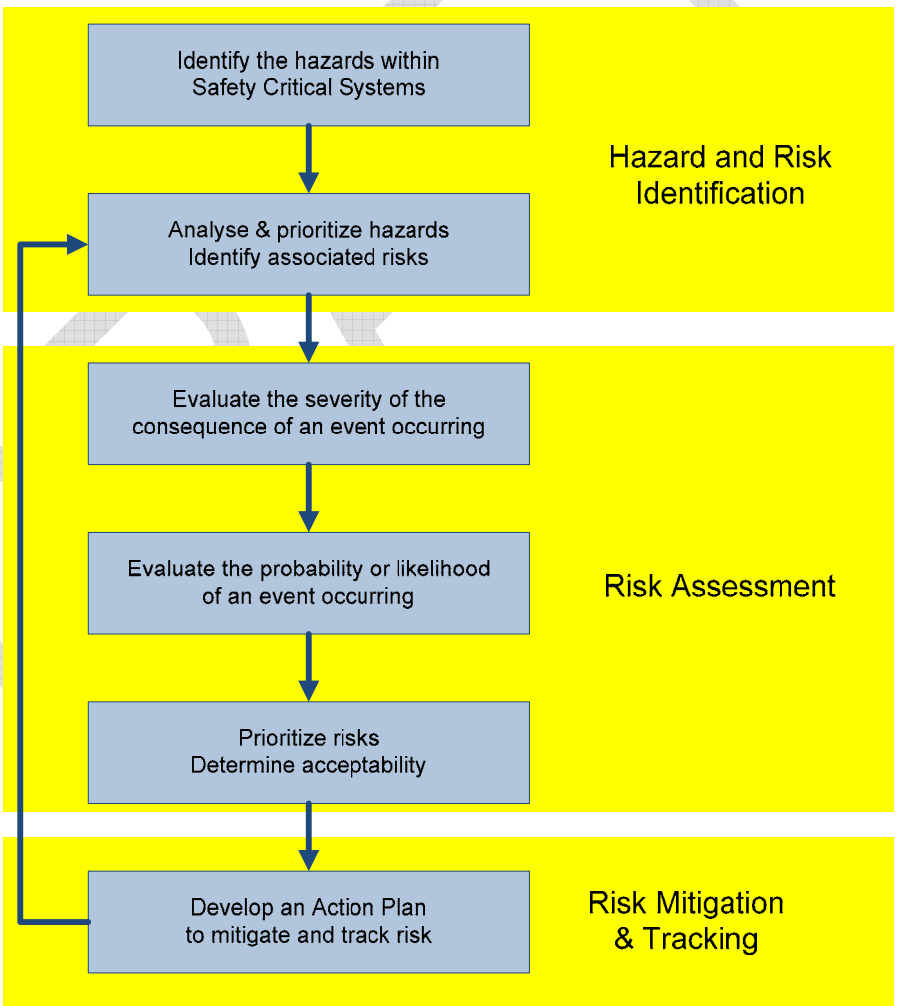


Figure 4.2- Risk Management Process

4.3.1 Hazard Identification

A hazard is a condition, object or activity with the potential of causing injury to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function. A hazard may involve any situation or condition that has the potential to cause adverse consequences. The scope of hazards found at an airport is wide, even when keeping within the bounds of an SMS as it applies to airport safety critical systems. Indeed, hazards are embedded in a significant portion of the organization's functions and operations. In other terms, hazards are not necessarily always found in plain view on the A.O.A., like a baggage cart stranded in the middle of nowhere, but appear most significantly in the areas described in the proactive hazard identification process further described below.

4.3.2 Hazard Identification Processes

Effective safety management requires use of hazard identification processes. These are known as the *reactive process* applied after an occurrence or event, and the *proactive process* to prevent events before they occur and to assess the "safety health" of safety-critical systems as a whole.

Both reactive and proactive processes are used for identifying safety hazards throughout the organization.

4.3.2.1 The Reactive Process

The reactive safety strategy calls for investigation of reported safety-critical system failures, reported incidents and accidents. The reporting step is the starting point in the reactive process and includes the following sources:

a. Events submitted through the non-punitive reporting system;

b. Operations inspection reports;
c. Police reports on events on the Airport Operations Area (AOA);
d. Event or inspection reports initiated by facility maintenance personnel;
e. FAA inspection reports;
f. Air traffic control discrepancy reports;
g. Air carrier or ground handler reports on events or concerns;
h. OSHA reports that contain relevance to safety-critical systems; and
i. Reports submitted by all other sources.

The reactive hazard reporting process is found in Appendix 1.

4.3.2.2 The Proactive Process

The proactive safety strategy calls for the investigation of reports and review of procedures, standards, policies, operational requirements, communications and of other areas as listed below:

a. **Outside Reports:** Information provided by the FAA or other aviation organizations;
b. **Occurrences:** Accidents or incidents that occurred at other airports;
c. **Hardware:** This relates to the quality and availability of tools and equipment. Principal components would include policies and responsibilities for purchase, quality of stock system, quality of supply, loss of equipment, compliance to specification, age of equipment, non-standard use of equipment, etc.;

d. **Design:** Design factors can lead directly to the commission of errors and violations. There are three main classes of problem: a failure on the part of the designer to provide external guidance; lack of clarity of explanation of the range of safe action of designed objects; and the failure of designed items to provide feedback to the user.

e. **Maintenance Management:** This factor relates to management rather than the execution of maintenance activities. Was the work planned safely? Did maintenance work or an associated stoppage cause a hazard? Was maintenance carried out in a timely fashion?

f. **Procedures:** This relates to the quality, accuracy, relevance, availability and workability of procedures (SOPs);

g. **Error-Enforcing Conditions:** These are conditions relating either to the workplace or to the individual that can lead to unsafe acts. There are two main categories: error-producing conditions and violation-promoting conditions;

h. **Housekeeping:** This factor relates to problems that have been present for a long time and various levels of the organization have been aware of them but nothing has been done to correct them. Its “upstream” influences include inadequate investment, insufficient personnel, poor incentives, poor definition of responsibility and poor hardware;

i. **Incompatible goals:** Goal conflicts can occur at any of three levels:

- Individual goal conflicts;
- Group goal conflicts, when the informal norms of a workgroup are incompatible with the safety goals of the organization;

- Conflicts at the organizational level in which there is an incompatibility between safety and productivity goals;

j. **Communications:** Communications problems fall into three categories:
   - System failures in which the necessary channels of communication do not exist, are not functioning, or are not regularly used;
   - Message failures in which the channels exist but the necessary information is not transmitted; and
   - Reception failures in which the channels exist, the right message is sent, but it is either misinterpreted by the recipient or arrives too late;

k. **Organization:** This concerns organizational deficiencies that blur safety responsibilities and allow warning signs to be overlooked. The three main components are:
   - Organizational structure;
   - Organizational responsibilities; and
   - Management of contractor safety;

l. **Training:** Problems include the failure to understand training requirements, the downgrading of training relative to operations, the obstruction of training, insufficient assessment of results, poor mixes of experienced and inexperienced personnel, poor task analyses, inadequate definitions of competence requirements and so on; and

m. **Defenses:** These comprise failures in detection, warning, personnel protection, recovery, containment, escape and rescue.

The proactive hazard reporting process is found in Appendix 2.

4.4 Analyzing and Assessing Risk

The risk management process as described in Section 4.2 includes a risk assessment component associated with known hazards. Risk assessment is defined as a function of both the likelihood of an event occurring and of the possible extent of its damaging outcome and then comparing these against some acceptability criteria.

There are many ways to approach the analytical aspects of risk assessment. For some risks, the number of variables and the availability of both suitable data and mathematical models may yield reliable results. However, few risks in aviation lend themselves to credible analysis solely through numerical methods. Typically, these analyses are supplemented qualitatively through critical and logical analysis of the known facts and their relationships. Once data has been collected from analysis and assessment of risk, they will be further analyzed and reviewed using a combined effort from the Safety Manager and SMS Committee members.

4.4.1 Problem Definition

In any analytical process, the problem must first be defined. In spite of identifying a perceived hazard, defining the characteristics of the hazard into a problem of resolution is not always easy.

4.4.2 Probability or Likelihood

Regardless of the analytical method used, the probability or likelihood of an event causing harm or damage must be assessed. The *who, what, where* and *when* must be answered. Here are a few examples:

a. Is there a history of similar occurrences, or is this an isolated case?;

b. What other equipment or components of the same type might have similar defects?;

c. How many operating or maintenance personnel are following, or are subject to the procedures in question?;
d. What percentage of the time is the suspect equipment or the questionable procedure in use?; and
e. To what extent is there organizational, management or regulatory implications that might reflect larger threats to public safety?

Based on these considerations, the likelihood of an event occurring can be assessed, for example in a five-level matrix as shown in Figure 4.3, from almost impossible to most likely to occur:

Probability or Likelihood Matrix	
Level 1	Event almost inconceivable to occur
Level 2	Very unlikely to occur. (May be possible, but not known to have ever occurred).
Level 3	Unlikely but has occurred rarely. (Known to have happened, but a statistically credible frequency cannot be determined).
Level 4	Likely to occur and has occurred infrequently. (Occurs on order of less than once per year and is likely to reoccur within 5 years).
Level 5	Likely to occur frequently. (Occurs on order of one or more per year and likely to reoccur in within one year)

Figure 4.3 – Probability or Likelihood Matrix

4.4.3 Severity of Consequence

Likelihood alone will not be sufficient to provide a significant assessment of a risk. The severity of the consequence of an event happening must equally be determined. To accomplish this, consequence is weighed against impact on people (public and airport employees), public perception, environmental and airport operations. A severity of consequence matrix is shown in Figure 4.4:

Severity of Consequence Matrix	
Level 1	No damage, injury or negative consequence
Level 2	**People** – First aid required, no disability or employee lost of time **Public perception** – Lukewarm interest **Environment** – Contained impact **Operations** – Minor damage, potential delays in operations
Level 3	**People** – Temporary incapacitating injury, employee loss of time **Public perception** – Some show of interest, no marked concern, public image not affected **Environment** – Non contained incident, repairable **Operations** – Minor damage to assets, minor slowdown or partial short stoppage
Level 4	**People** – Disabling/Severe injury **Public perception** – Marked and sustained interest, expressions of serious concern **Environment** – Non-contained, overflowing boundaries, repairable **Operations** – Major damage to assets, major slowdown/partial temporary stoppage
Level 5	**People** – Lost of life, life threatening injury **Public perception** – Medium-term loss of safety perception **Environment** – Major impact, irreparable **Operations** – Loss of critical assets, medium- or long-term stoppage

Figure 4.4 Severity of Consequence Matrix

4.4.4 Risk Acceptability

Likelihood and consequence assessment levels are combined to determine a risk level ranked from low, to medium and high, as illustrated in the risk assessment matrix in figure 4.5. The risk level in the matrix is defined as:

a. **Low risk** – Target level of risk: Acceptable without restriction or limitation; the identified risks are not required to be actively managed, but are documented;

b. **Medium risk** – Acceptable level of risk: Minimum acceptable safety objective; the proposal may be implemented or the activity may continue, but tracking and management are required. Potential mitigation measures must be investigated to determine that the risk is acceptable to the WCAA; and

c. **High risk** – Unacceptable level of risk: The proposal cannot be implemented or the activity continued unless risk is further mitigated to medium or low level. Tracking and management involvement are required, and the appropriate manager must approve any proposed mitigating controls.

LIKELIHOOD						
	5	5	10	15	20	25
	4	4	8	12	16	20
	3	3	6	9	12	15
	2	2	4	6	8	10
	1	1	2	3	4	5
		1	2	3	4	5
	SEVERITY					

LOW	MEDIUM	HIGH

Figure 4.5 Risk Assessment Matrix

4.4.5 Non-Numerical approach

The numerical method with its risk assessment matrix just described may not always be entirely applicable when considering a risk is from an organization's total perspective. Indeed, the organization will also need to consider a less numerical approach in determining the acceptability of particular risks and include consideration of such factors as:

a. **Managerial:** Is the risk consistent with the organization's safety policy and standards?;
b. **Affordability:** Does the nature of the risk defy cost-effective resolution?;
c. **Legal:** Does the risk conform to current regulatory standards and enforcement capabilities?;
d. **Cultural:** How will the organization's personnel and other stakeholders view this risk?;
e. **Market:** Will the organization's competitiveness and well-being vis-à-vis other organizations be compromised by not reducing or eliminating this risk?;
f. **Political:** Will there be a political price to pay for not reducing or eliminating this risk? and
g. **Public:** How influential will the media or special interest groups be in affecting public opinion regarding this risk?

4.5 Risk Mitigation and Tracking

Where risk is concerned, there is no such thing as absolute safety. Risks have to be managed to a level "as low as reasonably practicable" (*ALARP)*. This means that the risk must be balanced against the time, cost and difficulty of taking measures to reduce or eliminate the risk.

4.5.1 Risk Mitigation Strategies

Before selecting appropriate risk mitigation strategies, it is important to understand why the existing system of defenses was inadequate. The following line of questions should be employed:

a. Were defenses provided to protect against such hazards?;
b. Did the defenses function as intended?;
c. Were the defenses practical for use under actual working conditions?;
d. Was affected staff aware of the risks and the defenses in place?; and
e. Are additional risk mitigation measures required?

Different risk mitigation strategies can be applied. In principle, risk mitigation might seem quite simple and straightforward. In practice, deciding on which strategy or strategies to apply, and preparing a work plan for implementation will involve a rigorous decision-making process which includes a thorough evaluation of all possible options.

Risk mitigation strategies may consist of:

a. ***Exposure Avoidance:*** The risky task, in terms of practice, operation or activity, is avoided because the risk exceeds the benefits;
b. ***Loss Reduction:*** Activities are taken to reduce the frequency of the unsafe events or the magnitude of the consequences; and
c. ***Segregation of Exposure (separation or duplication):*** Action is taken to isolate the effects of the risk or build in redundancy to protect against the risks, i.e. reduce the severity of the risk (for example, protecting against collateral damage in the event of a material failure, or providing back-up systems to reduce the likelihood of total system failure).

Alternatives for risk mitigation do not all have the same potential for reducing risks. The effectiveness of each option needs to be evaluated before a decision can be taken. It is important that the full range of possible control measures be considered and that trade-offs between measures be considered to find an optimal solution. Each proposed risk mitigation option should be examined from such perspectives as:

a. ***Effectiveness:*** Will it reduce or eliminate the identified risks? To what extent do alternatives mitigate the risks? Effectiveness can be viewed as being somewhere along a continuum, as follows:
    - ***Level One*** *(Engineering actions):* The safety action **eliminates** the risk;
    - ***Level Two*** *(Control actions):* The safety action taken accepts the risk but adjusts the system to **mitigate** the risk by reducing it to a manageable level, for example, by imposing more restrictive operating conditions; and
    - ***Level Three*** *(Employee actions):* The safety action taken accepts that the hazard can neither be eliminated (Level One) nor controlled (Level Two), so employees must be taught how to cope with it, for example, by adding a warning, a revised checklist and extra training;
b. ***Cost/Benefit:*** Do the perceived benefits of the option outweigh the costs? Will the potential gains be proportional to the impact of the change required?
c. ***Practicality:*** Is it ***doable*** and appropriate in terms of available technology, financial feasibility, administrative feasibility, regulatory requirements, political will, etc.?;
d. ***Challenge:*** Can the risk mitigation measure withstand critical scrutiny from all stakeholders?;
e. ***Acceptability;*** How much buy-in (or resistance) from stakeholders can be expected?;

f. ***Enforceability:*** If new rules (SOPs, regulations, ordinances, ACs, etc.) are implemented, are they enforceable?;
g. ***Durability:*** Will the measure withstand the test of time? Will it be of temporary benefit or will it have long-term utility?;
h. ***Residual Risks:*** After the risk mitigation measure is implemented, what will be the residual risks relative to the original hazard? What is the ability to mitigate any residual risk?; and
i. ***New Problems:*** What new problems or new (perhaps worse) risk will be introduced by the proposed change?

4.6 Communication and Documentation

A widely accepted definition of SMS is that it is an organized approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures. SMS implementation will call for the establishment of processes requiring action to be taken, reports to be prepared and other activities to be carried out throughout different departments and levels of the organization.

Records should be documented and kept for a period of five years, with the exception of reports from the proactive and non-punitive reporting systems that should be kept for an indefinite period of time. At a minimum, electronic media records should be kept of:

a. All activities related to identification of hazards and risk assessment;
b. Results of all investigation of accidents and incidents;
c. Mitigation action taken and tracking assessments;
d. Findings of internal audits, assessments and program review; and
e. Communication strategies and publications.

The consolidated documentation should be readily accessible by persons who need the information.

4.7 Non-Punitive Reporting System

Introducing a Safety Management System in the WCAA requires, to various degrees, a change in culture. A positive safety culture will provide for continuous improvement in the organization's *safety health*. To achieve this, lessons must be learned from every occurrence, incident or accident involving safety critical systems. A non-punitive reporting system is instrumental in nourishing mutual trust between management and employees and in building this safety culture. Safety awareness must be promoted throughout the organization to raise awareness of safety. Additionally, promoting safety throughout the organization will raise participation in the non-punitive reporting system. In order for the non-punitive system to be successful, all members of the organization must be committed and dedicated to promoting safety throughout the organization.

4.7.1 Basic Principles

The WCAA non-punitive reporting system is established with an understanding that:

a. Airport operations are carried out in compliance with rules, regulations and established standards;
b. Reports on events involving safety critical systems, including incidents, accidents and near misses, hereafter called *events*, are an indispensable source of information required to ensure continuous improvement of safety of WCAA operations;
c. Employees have a responsibility to report events in which they are directly or indirectly involved when carrying out their normal duties. Management has the responsibility to encourage such reporting;
d. Employees have a responsibility to participate in inquiries and investigations on facts and circumstances surrounding events. Management is responsible for encouraging such participation; and

e. Employees have the right to expect to be protected against blame and disciplinary action following reports submitted in good faith under the non-punitive reporting system.

4.7.2 Operative Elements

a. In a non-punitive reporting system, a report in which an employee submits facts and circumstances of an event in which he or she may have been directly or indirectly involved and for which event, it is reasonable to assume that a report would not have been submitted;
b. The submission of reports is encouraged and, when submitted in good faith under the basic non-punitive reporting principles, originators and those who have contributed in the submission and/or have participated in the investigation of facts and circumstances, are protected against disciplinary sanctions;
c. Reports excluded from the non-punitive reporting system are those in which one or more of the following circumstances are present:
    - An unlawful or fraudulent act was committed;
    - There is evidence of willful negligence; and
    - Employee(s) were under the influence of alcohol or drugs;
d. Reports must be submitted in writing to the immediate supervisor as soon as possible after the event. If circumstances warrant, when there is a risk of short-term recurrence, the immediate supervisor must be notified verbally without delay;
e. Submission of a report under the non-punitive reporting system does not preclude carrying out any other task normally required under the circumstances; and
f. The supervisor receiving the report acknowledges receipt, carries out a preliminary investigation and takes immediate action, if

appropriate, to ensure that operations resume under safe conditions.

5.0 Safety Promotion

Safety promotion requires communication, consultation and the reporting of safety issues, and sharing safety lessons with airport employees and other entities within the airport organization. In order to successfully implement and promote safety within the airport, the airport management must develop a process in which basic skills help mitigate safety concerns with the aim of maintaining a safe operating environment. The related procedures, practices, training and the allocation of resources must clearly demonstrate the management's commitment to safety and must ensure compliance with all SMS policies and procedures identified in this Safety manual. In summary, to effectively promote safety, the airport management will:

- Demonstrate its commitment to the SMS by example;
- Communicate the outputs of the SMS to all employees through a safety newsletter;
- Provide training for personnel corresponding with their level of responsibility;
- Define competency requirements in job descriptions for individuals in key positions;
- Document, review and update training requirements on an annual basis;
- Share lessons learned that promote improvement of the SMS through the safety newsletter; and
- Maintain the non-punitive reporting system described in section 4.7 of this SMS Manual.

There are three elements to the SMS safety promotion phase. Implementation of these elements in their prescribed form will deliver the desired outcome which is to promote safety and awareness. The three elements are as follows:

- Culture;
- Safety training; and
- Communications.

5.1 Culture

Safety culture in an organization can be described as the way in which it conducts and manages safety. It further extends to procedures which promote safety awareness and participation in non-punitive reporting systems. In order to make safety promotion a successful element of the ever-changing culture of the airport organization, safety concerns and issues will be communicated in an effective manner and shared throughout the organization. This will allow for accurately addressing safety concerns at all hierarchical levels, which will further enhance a safety culture.

Communication is vital in establishing safety and its awareness; hence all forms of communication will be encouraged both horizontally and vertically throughout the entire organization, facilitating lucid understanding of safety concerns and issues.

A well-defined and concise way of safety reporting will be developed within the WCAA to streamline management efforts. A process has been defined in Chapter 4 to address the problem with the aim of assessing and identifying factors needed for future prevention.

5.2 Safety Training

Communications alone through publications of safety policies, procedures, bulletins and newsletters will not promote safety. Training is as critical as the communications element; both of these elements simultaneously balance each other. Training raises awareness of current and ongoing problems and provides the relevant countermeasures through communications in the form of publications such as manuals and educational brochures. With efficient training, personnel will be able to distinguish, identify and report hazards; hence, participation within the organization in taking a more proactive approach towards safety. In addition to implementing training, management will also ensure that

training requirements are documented for each area of activity including areas where training requirements are not defined by regulations.

Training is a constant course of action; management will develop a documented annual training plan which includes initial, recurrent and updated training, as applicable. A training file will be developed and maintained for each employee at all levels to assist in identifying and tracking employee training requirements. This approach will assist in verifying that personnel have received appropriate training.

The training plans will demonstrate to all members of the organization the commitment to the safety policies and objectives from members of senior management. Additionally, any training program is constantly changing and must undergo continuous improvement in order for the program to remain successful.

The development of people is most effective when based on a solid understanding of the effectiveness and impact of training and development programs. In order to ensure that employees and all personnel are receiving adequate and comprehensive training, the effectiveness of training must be measured. Measuring training will guarantee that training objectives are met. To achieve this goal, WCAA can implement a testing program to validate training by conduct pre-testing and post-testing surveys, and allow trainees to comment on current training practices. Testing will ensure that the employee has an understanding of the material taught to him/her, and will also help identify where and how training might need to be improved, while at the same time verifying the competency of all trainees.

Surveys can be utilized immediately following training with the intention of validating the lessons learned through the training program. Additionally surveys can be used three to six months after the completion of the training program to

determine the extent of impact of on-the-job training performance. Usually the survey is completed by the person who has received the training and that individual's manager. Other people, such as peers, direct reports or customers, who are in a position to observe the person on-the-job, may also participate to increase the range of input and information gathered. Surveys are proven to be very valuable tools that will help the WCAA ensure that all training objectives are met. Surveys may also be used to set benchmarks in order to establish an existing skills knowledge base. This can be used to monitor and track the effectiveness of all training.

In addition to surveys, comment cards can provide important information about training effectiveness and how training can be improved. These cards give trainees the opportunity to provide feedback on potential improvement to training methods. This feedback ensures standards are met and action is taken to sort out training-related problems.

5.3 Communication

Communication is a key element in promoting safety and involves communicating safety policies and objectives throughout the organization. The WCAA will develop a communication process which enables the SMS to function effectively and to efficiently disseminate safety information throughout the hierarchy of the organization. This process will be measured and monitored to enhance the effectiveness of the dissemination process. Moreover, the WCAA will plan a well-rounded communication strategy that includes electronic communication, frequent meetings, SMS award systems, employee recognition systems, SMS bulletins, etc. Safety newsletters will provide valuable information regarding safety-related issues. In order to increase the effectiveness of the newsletter, it will be distributed throughout the organization. Additionally, posters will be hung throughout employee areas to promote a safe operating environment.

Currently, the WCAA has a group of senior managers known as the “Leadership Team” which meets periodically to discuss various topics regarding airport-related items. This group will be responsible for communicating SMS safety objectives and policies throughout top management. Additional meetings are also conducted with lower management and various tenant stakeholders of the airport. These meetings and committees are Airfield Coordination, Emergency Management, Airport Firefighting and Rescue (ARFF), Landside Services, Public Safety and Security, Strategy Management and Wildlife Committee, Foreign Object Debris (FOD), and the Quarterly Airfield Safety and Coordination Meeting. These groups provide an excellent forum for safety goals and objectives to be communicated from top management to line managers and employees. In addition, they will provide an organized way for employees to voice their opinions, comments and concerns to top management.

6.0 Safety Assurance

6.1 Safety Goals and Objectives

For the purposes of this SMS Manual, “goals” are defined as general results that the organization is working to accomplish. “Objectives” are defined as the level of achievement expected from the implementation of the goals.

Goals must support the corporate strategies enunciated in the WCAA strategic plan. Objectives should be specific, measurable, achievable, realistic and targeted (SMART).

Performance indicators are the metrics used to determine if the objectives are being met. Objectives relate to the goals, and performance indicators that measure the degree of success in reaching objectives.

6.1.1 Setting Safety Goals

Goal-setting is vital to measuring and improving an organization’s performance. Goals are set as part of the WCAA strategic planning process.

A common weakness in setting safety goals is focusing on outcomes. This usually means counting accidents, although the ultimate goal is ‘no accidents,’ there are more precise and useful ways of measuring safety, especially in a safe system, than counting accidents.

Professor James Reason of the University of Manchester, a leading authority in the management of safety, compares managing safety to “fighting a guerrilla war in which there are no final victories.” It is a never-ending struggle to identify and eliminate or control hazards. We will never run out of things to do to make airport operations safer.

Sound management requires that we identify safety goals, decide how to achieve them, and hold ourselves accountable for achieving them. Sound safety goal-setting concentrates on identifying systemic weaknesses and accident precursors, and either eliminating or mitigating them.

Since the WCAA does not have an SMS in place, the safety goals should initially be closely related to the implementation plan. Subject to confirmation by senior management, the following goals have been identified for the WCAA[4]:

1. To develop, implement, and periodically evaluate internal organizational goals and objectives;
2. To ensure appropriate levels, competency and fitness, of staff;
3. To foster a safety culture by ensuring that:
    a. All employees are well-informed and can participate in decision-making related to safety management; and
    b. There is an open atmosphere for cooperation and communication;
4. To develop and implement efficient systems for hazard identification and risk assessment;
5. To develop and implement processes to ensure that information is documented, distributed, protected, stored and disposed of. To ensure that contractors comply with the same safety requirements, policies, and procedures, as WCAA employees;
6. To ensure effective emergency preparedness planning; and
7. To develop and implement efficient systems for investigations of incidents, accidents, near-misses and other safety concerns, determine root and contributing cause(s) and ensure that effective corrective actions are taken as the result of lessons learned.

[4] This list is provided as guidance to the WCAA by the consultant and should be reviewed in order to ensure it coincides with the strategies and priorities of senior management.

For each safety goal, objectives and performance indicators have been developed as follows:

Safety Goal 1

To provide for continuous monitoring and regular assessment of the safety level being achieved through the following:

Safety Objectives

- Develop a procedure for establishing goals/objectives (e.g., with a formal approval body, at a specified time, etc.);
- Establish short-term and long-term safety objectives down to the manager level for the Operations Division; and
- Develop a process to evaluate progress toward these safety goals and objectives;

Performance Indicators

- Have short-term and long-term goals been established for the WCAA organization?;
- Have specific objectives with measurable outcomes been defined based on the short- and long-term goals to:
    - Reduce incidents and accidents;
    - Eliminate hazards and reduce risk;
    - Improve emergency response and mitigation; and
    - Obtain involvement of all stakeholders?;
- What is the extent to which the organization's risk management program has been audited and evaluated based on the organizational goals and objectives?;
- What is the extent to which organizational goals and objectives have been met?;
- Are the goals/objectives in written form?;

- Are both long-term and short-term goals used?;
- Do employees participate in setting goals?;
- Are goals/objectives related to the hazards/risks of the installation and to the corporate safety policy?;
- Are they easy to understand and communicate?;
- Are they concrete and measurable?;
- Are they challenging but realistic?;
- Do they reflect the experiences and views of employees?;
- Are there resources available to achieve the goals?;
- Is there an action program associated with every goal/objective in order to ensure implementation and follow-up?; and
- Is the progress monitored and information provided to employees?

Safety Goal 2

To ensure appropriate levels, and SMS safety competency/fitness, of staff through the following:

Safety Objectives

- Develop and implement a documented training procedure for airport operations staff;
- Establish adequate job training profiles for all airport operations staff; and
- Develop and implement a process to determine and maintain adequate resource levels for all safety-critical systems;

Performance Indicators

- What is the extent of incidents attributed to problems related to SMS safety training (e.g., staffing levels, competency, etc.)?;
- Is it clear that employees are given the responsibility and means to carry out assigned tasks in a safe manner and, if not, that employees have adequate channels to redress any concerns?;

- Is the general SMS safety competence level of the employees adequate?:
    a. Is the basic education of the employees adequate and consistent with industry standards?;
    b. Is there a matching of the employees and the relevant profiles in initial and recurrent training?;
    c. Are there regular checks of capacity, adequacy, etc. (including, e.g., recurrent training)?; and
    d. Is there a procedure for employees to remove themselves, or be removed from safety-related work, when temporarily unfit for work (as determined by a manager or by the employee) without fear of possible negative consequences?;
- Are there formal appraisal systems that include safety performance?;
- Are there specific incentives for good safety performance?;
- Are there programs for the development of the employees for job enrichment and for job rotation in order to keep the workforce alert?;
- Are there procedures in place for dealing with non-compliance with safety related procedures?; and
- Is the manning of the operations of the airport always adequate?
    a. Is it adequate during all periods of operation (including non-office hours)?;
    b. Do decisions on manning take into account that excessive overtime, excess workloads or stress could impact safety?; and
    c. Is there a procedure to help ensure that the staffing is adequate during start-up, downsizing, increasing workloads and other periods of change?

Safety Goal 3

To foster a safety culture by ensuring that:

a. All employees are well-informed, and can participate in decision-making related to safety management; and
b. There is an open atmosphere for co-operation and communication;

Safety Objectives

- Assist the airport community's transition to SMS;
- Create a proactive culture where the focus is on addressing issues and concerns, and not on imposing punitive measures; and
- Build constructive relationships with stakeholders to promote accountability for safety;

Performance Indicators

- What is the extent to which employees follow established procedures related to safety?;
- What is the extent to which employees consider the Safety Manager a trusted source of information on:
    a. Operational risks at the airport; and
    b. Safety related information?;
- Is it obvious that safety is a decisive factor in the company decision-making?;
- What is the extent to which management is involved in safety activities, e.g.:
    a. What is management's visibility in daily operations (number of visits, time spent, etc.)?;
    b. What is the number of meetings held periodically (per year, month etc.) with safety as a substantial item on the agenda?;

c. Are managers' actions good examples with respect to safety?;
d. Do managers take part in the follow-up of incidents?;
e. Do managers actively monitor the activity plans for safety goals and objectives?;
f. Is compliance with safety procedures monitored?; and
g. Is safety (always) on the agenda of the regular meetings (from board meetings to daily operational meetings)?;

- What is the extent to which suggestions and complaints from employees result in improvements in safety?:
  a. Do employees actively contribute to the development and implementation of safety policies and practices?;
  b. Is the atmosphere one in which all employees can take actions for reasons of safety without the fear of possible negative consequences?; and
  c. What is the number of safety proposals per employee (number should normally be high, which shows commitment)?;
- What is the amount of money or other resource spent per year on safety, relative to other expenditures?:
  a. Are adequate resources for safe operations allocated in general budgets as well as promptly when there is an urgent need?; and
  b. Do managers and supervisors have the skills and resources so that that all members of their teams can work safely?

Safety Goal 4

To develop and implement efficient systems for hazard identification and risk assessment through the following:

Safety Objectives

- Develop and implement systematic procedures for hazard identification and risk assessment which address:
    a. Criteria for deciding on whether to undertake an analysis;
    b. Requirements for hazard identification and risk assessments (documentation);
    c. Consideration of the state-of-the-art/most effective methods;
    d. How hazard identification and risk assessments should be done (methods, stepwise depending on risk level);
    e. The roles and responsibilities of those involved in undertaking hazard identification and risk assessments;
    f. Timing for hazard identification and risk assessments (addressing the various stages including planning, operations, and modifications of installations);
    g. Requirements related to documentation of risk assessment reporting; and
    h. Actions that should be taken based on the recommendations from the risk assessments;

Performance Indicators

- Extent the installations within the enterprise have completed appropriate hazard identification and risk assessments using proper methods;
- Risk potential/risk reduction (over some period of time) as a result of risk assessments and actions from them (e.g., number of people at risk, lowered probability of accidents, smaller risk zones, etc.);
- Extent of incidents related to unknown risks (i.e. not identified in risk assessments);

- Number of risks assessed as non-acceptable that have not been resolved to an acceptable level;
- Are there procedures available for risk assessment of all safety-critical systems?;
- Are all types of hazards and risks covered by suitable methods including:
    a. Technical equipment, processes, systems, projects, modifications, etc.;
    b. Normal operation, start-up, shut-down, utility failures, other external disturbances,
    c. Construction projects; and
    d. Human factors (at-risk behaviors identified)?;
- Are there agreed-upon criteria for risk tolerance?;
- Are there clear rules concerning the roles and responsibilities for participation of persons in hazard identification and risk assessments that address leader of team, specialists, managers and other employees and independent resources?;
- Is there a procedure for keeping hazard identification and risk assessments updated?;
- Is there a procedure for giving feedback from hazard identification and risk assessments to move towards improved safety?; and
- Are there procedures for making relevant parts of the risk assessments and consequence analyses available to stakeholders?

Safety Goal 5

To develop and implement efficient systems for ensuring information is well-documented and that all documentation is available as needed through the following:

Safety Objectives

- Develop and maintain a comprehensive documentation and filing system with easy retrieval of documents;
- Develop and implement a comprehensive process to maintain all documentation up to date; and
- Maintain complete documentation related to:
    a. Regulatory requirements;
    b. Operational procedures and instructions;
    c. Hazard identification and risk management;
    d. Quality assurance; and
    e. Training;

Performance Indicators

- Is the documentation complete?;
- Is there a document control system? Does this system ensure that documentation is passed along as appropriate?;
- Is there an updating mechanism for the documentation and filing system?;
- Is there a mechanism for keeping information in the documentation system updated?;
- Is this implemented on a timely basis?;
- Does this include all relevant types of information (including, for example, engineering information)?; and
- Is there a document retention system?

Safety Goal 6

To ensure that contractors comply with the same safety requirements, policies, and procedures, as WCAA employees through the following:

Safety Objectives

- Develop and implement procedures to ensure contractors have sufficient knowledge or training in the WCAA safety policy and procedures and that there is sufficient coordination with regular staff;

- Ensure contracted workforce receives the proper training for the installation, and work under the same conditions as employees, applying the WCAA safety policy and procedures; and

- Ensure that third-party service providers have the ability to report safety hazards into the WCAA SMS;

Performance Indicators

- What are the umber of incidents attributed to contractors or visitors as a root or contributing cause?;
- Are there procedures for the selection and hiring of contractors to help ensure safety? Do they address:
    a. General requirements and check for adequate professional competence;
    b. Check of contractors' previous performance regarding safety;
    c. Safety conditions included as part of the contract; and
    d. Safeguarding that all equipment, materials and vehicles used by contractors meet relevant rules and standards and are only used by competent and, where relevant, certified individuals within the applicable limits;

- Are there procedures to help ensure safety in relation to contractors working on-site, including:
    a. Registration of each individual contractor when on site;

b. Training of each individual with a check of knowledge including updating of training (e.g., once per year);
c. Regular designation of a company contact person responsible for the contractor;
d. Clear channels of communication with management, with encouragement for the contractor to come up with suggestions;
e. Periodic inspection of contractor performance and of contractor construction sites; and
f. Suspension of the contractor from the site following misconduct; and

- Is there a method of transferring safety information between yourself and the third parties operating on the airport?

Safety Goal 7

To ensure effective emergency preparedness planning through the following:

Safety Objectives

- To develop and maintain comprehensive emergency plans; and
- To train staff and ensure competency in carrying out emergency procedures;

Performance Indicators

- Number of employees trained to actual mitigation competence;
- Number of exercises of the on-site plan per year (table-top, partial or full-scale);
- Is there an on-site emergency preparedness plan which:
    a. Is based on a thorough identification of possible emergency scenarios; and

b. Covers the whole range from small and likely to major and unlikely scenarios?;

- Does the plan include an emergency organization with clearly defined roles for all personnel involved, and with a clear hierarchy of responsibility?;
- Are the internal resources of the emergency organization adequate for carrying out its tasks, at any time of the day or the year?;
- Is the system for calling in personnel adequate at all times?;
- Is there a system (and criteria) for alarming external response resources?;
- Is there an emergency control center within the enterprise with adequate facilities including:
    a. Communications equipment, which will always be operable;
    b. Relevant plans and drawings of systems on the site; and
    c. Call lists, personnel lists, etc.;
- Is there an alternate center in case the normal center should become inoperable?;
- Are there well-marked and clear evacuation routes leading to defined assembly points for personnel in case of an emergency?;
- Are there clear criteria in the emergency plan regarding when to trigger the off-site emergency plan?;
- Is the responsibility for communication with external parties clarified (company spokesman)? Is the person(s) appointed trained for this purpose?;
- Is there regular training for and exercise of the on-site plan?;
- Does it involve all the relevant forces in the community on a regular basis?;
- Does it cover all employees (i.e. on all shifts) on a regular basis?;

- Is training performed during non-office hours to test the on-call system?;
- Are all employees, contractors and other personnel at the site informed about the emergency plan?;
- Does the on-site plan also include some preparedness for accidents off site?; and
- Is there a procedure for review and updating of the emergency plan:
    a. On a regular basis; and
    b. After training of the plan?

Safety Goal 8

To develop and implement efficient systems for investigations of accidents, near-misses and "learning experiences," determine root and contributing cause(s) and ensure that effective corrective actions are taken as the result of lessons learned. This will be done through the following:

Safety Objectives

- Develop a comprehensive system for reporting incidents and other "learning experiences"; and
- Instill a "reporting culture" encouraging reports of all events;

Performance Indicators

- Total number of reported incidents;
- Rate of incidents relating to each safety-critical system;
- Severity rate, i.e., financial cost of incidents;
- Amount of time needed for implementation of recommendations resulting from investigations;

- Extent to which the trend analyses and statistics reflect improvements, based on efforts to investigate and eliminate root and contributing causes;
- Number of appearances of same root cause;
- Is there an open atmosphere, without fear of punishment?;
- Are there definitions for “reportable events” including all incidents related to safety-critical systems including actions of contractors and airlines?;
- Are there documented procedures on how to report?;
- Are there clear responsibilities for coordination and maintenance of the reporting system?;
- Are all types of incidents and other learning experiences involving safety-critical systems covered?;
- Are all employees encouraged by the management to report and discuss incidents?;
- Are there incentives for reporting?;
- Is there a history of employees willing to report their mistakes?;
- Is there a formal mechanism for responding to employee reports, including taking action and giving feedback to the individual?;
- Is there a mechanism to share lessons learned throughout the company and the industry?; and
- Is the reporting system regularly reviewed to ensure that it is functioning as intended?

6.2 Safety Oversight

Safety oversight is required to regularly review and evaluate the safety performance of the WCAA as a necessary part of managing safety. It is essential to measure the organization’s commitment to safety, to assess the achievements relative to policies and the goals set, and recognize both good and inadequate or deteriorating standards of safety performance.

The WCAA SMS safety oversight covers both managerial and technical aspects. It includes the following elements:

a. Quality assurance (QA);
b. Safety surveys;
c. Internal and external safety audits;
d. Safety trend analysis; and
e. Monitoring of corrective and preventive action(s).

Quality assurance is based on the principle of a continuous improvement cycle. In much the same way that SMS facilitates continuous improvement in safety, quality assurance ensures process control and regulatory compliance through constant verification and upgrading of the critical safety system processes. This is achieved through the application of internal and independent audits, strict document controls and ongoing monitoring of corrective actions.

The results of audits and evaluations will be fed back to management and staff, and used to actively correct deficiencies and to set new goals and priorities.

The safety performance indicators identified in section 6.1 of this safety manual and the safety oversight program are complementary tools for safety performance evaluation.

The WCAA SMS Director is responsible for the management of safety oversight. It has the authority to carry out an effective internal evaluation program of processes, procedures, inspections and training associated with WCAA safety-critical systems. The Safety Manager provides safety management expertise and facilitates the continuous improvement of the WCAA SMS. Audit teams will be augmented as required by staff with the necessary operational expertise. The SMS Director may require support from the Internal Audit division to ensure the use of proper audit procedures.

In accomplishing its activities, the Safety Manager is to have free and unrestricted access to all WCAA airport operations functions, records (manual and electronic), property and personnel. More specifically, the Safety Manager may (insofar as pertinent to a particular safety activity):

a. Speak or otherwise communicate with any current employee, full-time or part-time, of the WCAA in order to obtain information;
b. Speak or otherwise communicate with a former employee of the WCAA in order to obtain information;
c. Examine all documents of the WCAA; and
d. Speak or otherwise communicate with any consultant or external supplier of services considered to have information.

All information obtained is to be maintained in a confidential manner. The Safety Manager has neither direct responsibilities nor authority over any of the activities or operations reviewed.

The Safety Manager will maintain a process for identifying and selecting for review the safety-critical systems of the WCAA that reflects the greater degree of risk. The methodology adopted should be reviewed with senior management.

The process of making assessments should be communicated with the appropriate members of the WCAA, who should also be involved in the risk assessment process.

The Safety Manager will draw management's attention to any areas where there appears to be a question related to the appropriateness of either the level of risk accepted, or the level of mitigation.

At least part of the Quality Assurance System will be in the form of audits carried out by independent parties. The FAA audits may provide a form of external

auditing. The WCAA may additionally hire external auditors to evaluate the effectiveness of SMS.

The Safety Manager will be responsible for:

- Developing an annual audit plan for approval by the SMS Director. Audit scope, frequency and criteria will be based on:
    a. The status and importance of the processes and areas to be audited;
    b. Results of previous audits; and
    c. Industry best practice.
- Developing an audit plan for each, with input from the area to be audited as well as from other interested parties;
- Developing and maintaining a system to monitor the completeness of the internal audit or review reporting process and the corrective action;
- Developing and managing a selection/training process to ensure the objectivity and competence of auditors as well as the impartiality of the audit process;
- Developing a procedure for reporting audit results and maintaining records; (audit reporting includes evidence of excellent performance to provide opportunities for recognition by management and motivation of people);
- Developing, in consultation with line management, action plans for timely corrective and preventive action in response to audit results;
- Developing a procedure to record verification of action(s) taken, the effectiveness of corrective actions, and the reporting of verification results; and
- Developing a process to document and review lessons learned from within the organization.

The SMS safety oversight program focuses on three areas:

a. Compliance with procedures;
b. Safety performances of processes under review; and
c. Effectiveness of the SMS.

Audits will be conducted on safety-critical systems (or sub-systems), to verify compliance with procedures and to assess the use and effectiveness of controls. The WCAA SMS will be evaluated on an annual basis, or as directed by the SMS Committee, to assess its effectiveness.

6.2.1 Compliance with Procedures

SMS requires the WCAA to document and implement the procedures needed to attain its safety goals. A properly implemented safety oversight ensures that procedures are carried out consistently, that problems can be identified and resolved, and that the WCAA can continuously review and improve its procedures and services. It is a mechanism for maintaining and improving the safety of services so that they consistently meet or exceed the organization's safety objectives.

Staff must follow established procedures and identify inappropriate, inefficient or unsafe procedures to their direct supervisor or through the pro-active reporting system.

Line managers are responsible for assigning and supervising the work of staff engaged in safety-critical system activities in support of the operation of the WCAA. They contribute to the overall safety of WCAA operations by participating in the development of procedures, ensuring procedures are updated as required by changes in the operational environment, ensuring staff is trained in the execution of procedures, and ensuring procedures are carried out as specified.

6.2.2 Safety Performance of Processes

Safety performance monitoring validates the SMS, confirming not only that people were doing what they were supposed to be doing but also that their collective efforts have achieved the organization's safety objectives. Through regular review and evaluation, management can pursue

continuous improvements in safety management and ensure that the SMS remains effective and relevant to the airport's operation.

It is necessary for the Safety Manager to have an understanding of the process under review, indeed, ideally to use staff qualified to carry out the function, while being fully independent of it during the audit. An example of this is a review of snow-clearing operations by an independent observer, not by the manager directing the snow-clearing operation.

The controls that have been identified for managing the process safely should be checked for their use and effectiveness. Shortfalls against the expected standard must be formally reported through the remedial action process, for line management's consideration or action.

Compliance with procedures and safe performance of processes will be assessed through operational audits. The process for conducting operational audits is shown in Appendix 6.

6.2.3 Effectiveness of the SMS

The Quality Assurance System includes a process for the systematic evaluation of how well the WCAA is meeting its safety objectives and for providing a feedback to managers of individual units and senior management concerning the safety performance of the organization. This requires an efficient system for safety performance review and evaluation, which takes into account general safety performance and employees' attitudes as well as fulfilment of the safety manual in order to measure achievements and identify improvements to be made.

The effectiveness of the SMS is evaluated and improved through:

a. Internal audit results;
b. Safety objective achievement results;

c. Hazard analysis and event investigation results;
d. Internal/external feedback analysis and results;
e. Status of preventive and corrective action;
f. Follow-up actions from previous SMS evaluations;
g. Assessment of changes that could affect the Safety Management System;
h. Recommendations for improvement; and
i. Sharing of best practices across the organization.

It includes a coherent set of safety performance measures (Section 6.1) with sufficient detail to enable the effectiveness of the SMS to be assessed at a high level for the airport system as a whole, and at a lower level for each safety-critical system.

Evaluation of the SMS will be performed annually. The processes to plan and perform SMS evaluations are shown in Appendices 5 and 7 respectively.

Best practices and lessons learned by the Safety Manager will be shared across the organization through the safety newsletter.

6.2.4 Self-Inspection Program

The WCAA self-inspection program is one of the identified WCAA safety-critical systems.

Airfield Operations personnel conduct special airside inspections referred to as “FAR 139 Self-Inspections” which are conducted on a daily basis in compliance with FAR Part 139 Certification and Operations: Land Airports Serving Certain Air Carriers, and the Airport Certification Manual.

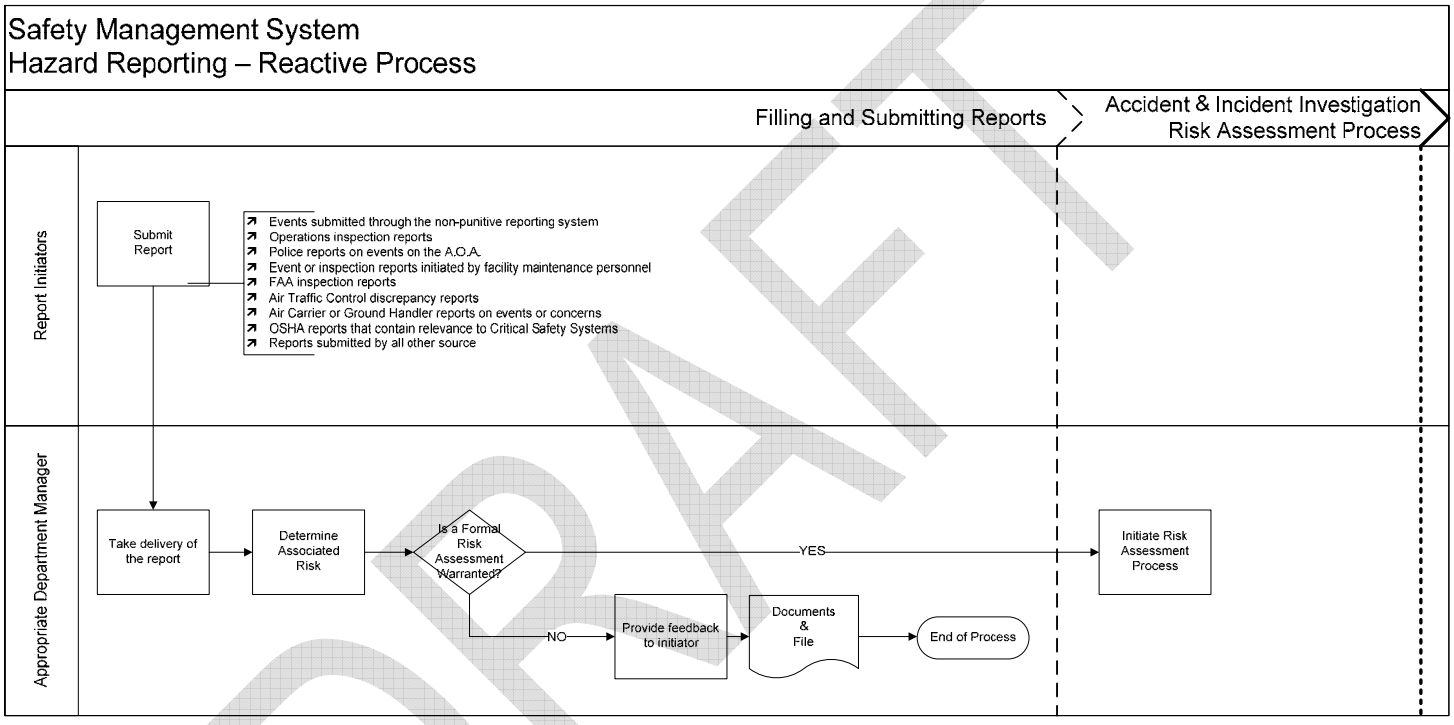
The inspections are not in themselves internal audits but rather a process to assess specific physical airport characteristics against FAR 139 requirements: The Airport Operations Specialist assigned to FAR 139 Self-Inspection duties inspects applicable FAR 139 items under the direction of the Airport Operations Manager. The assigned Airport Operations Specialists inspect applicable FAR 139 items concerning runways, taxiways and aprons[5].

Self-inspection reports may find deficiencies which constitute hazards. In such cases, the hazard reporting reactive process shown in Appendix 1 will be followed. Deficiencies that do not require a formal risk assessment will be managed through a FAR 139 work order.

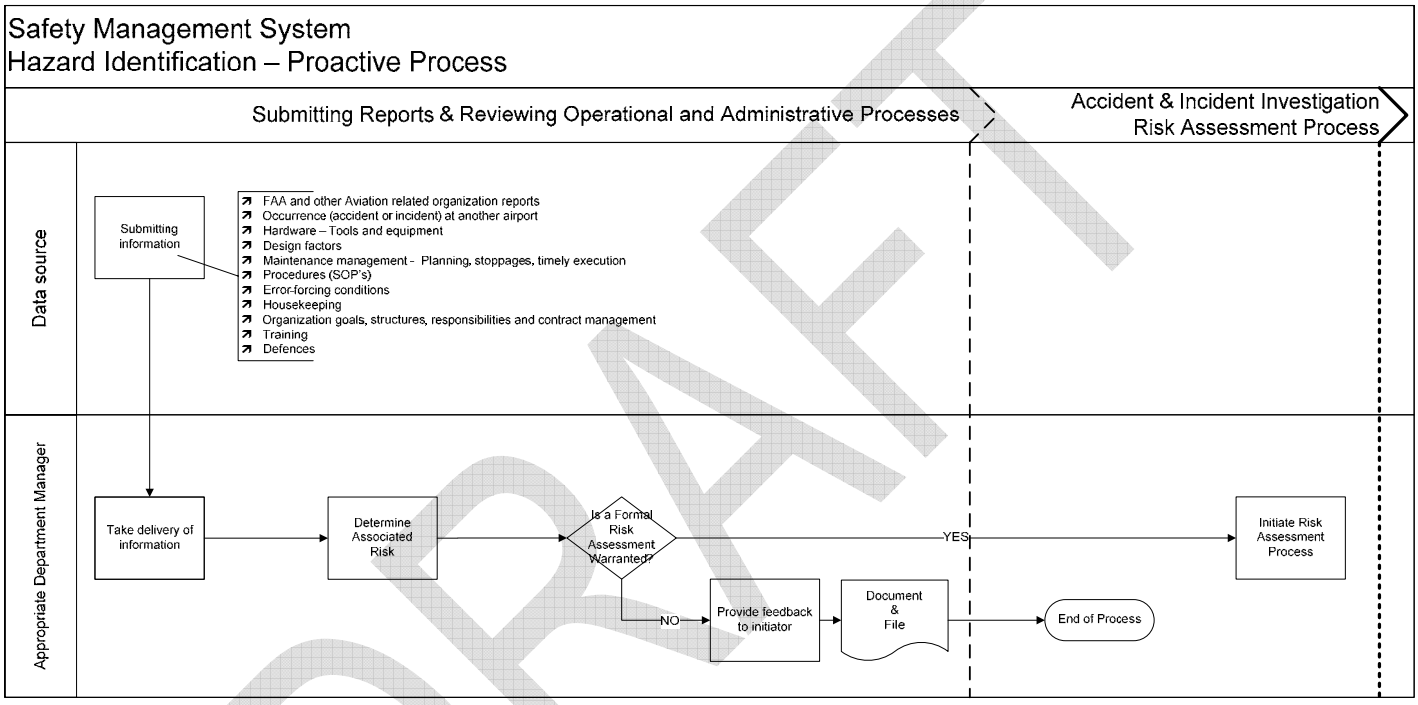
Documentation will be maintained in accordance with DTW SOP section 1240 for deficiencies that do not require a formal risk assessment, and in accordance with section 4.5.2 for hazards requiring a formal risk assessment.

[5] DTW SOP section 1240.

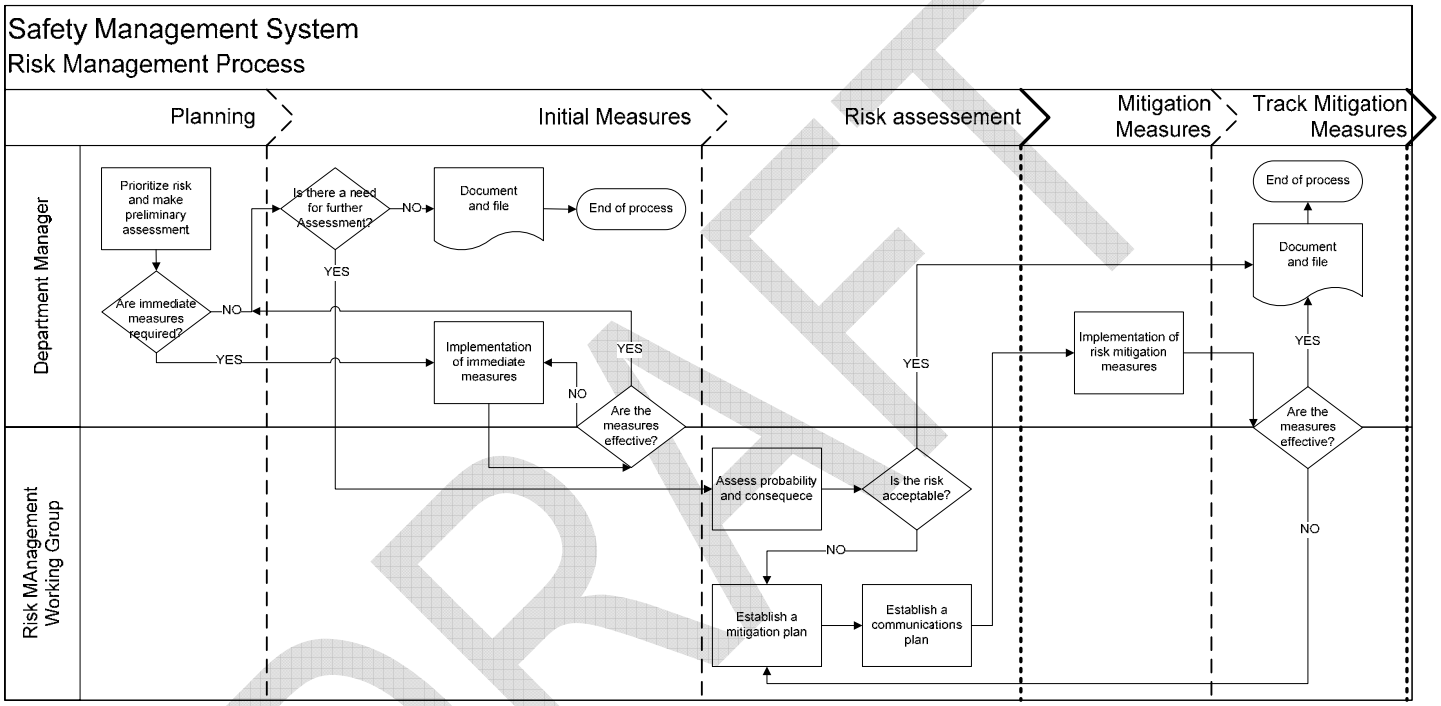
Appendix 1



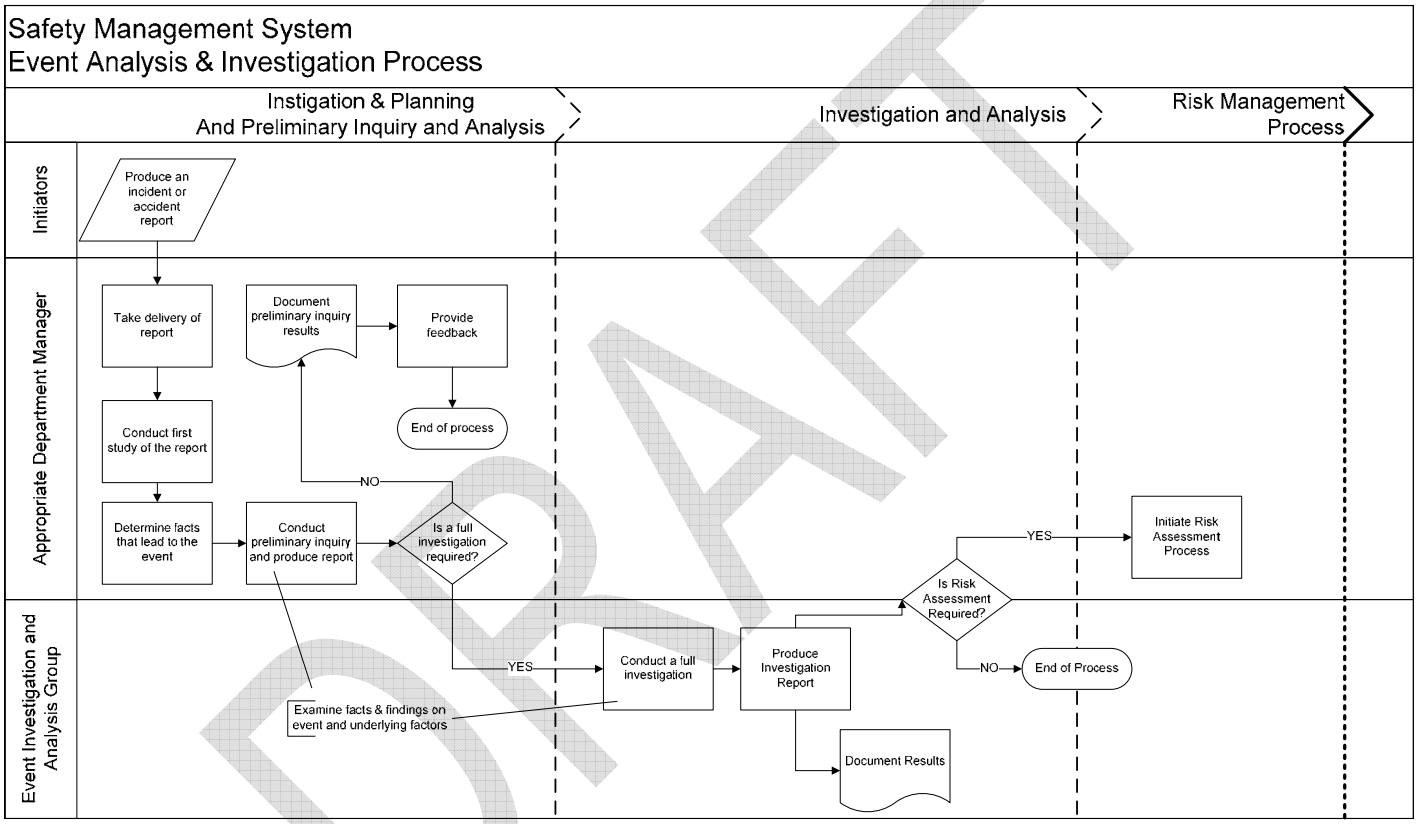
Appendix 2



Appendix 3

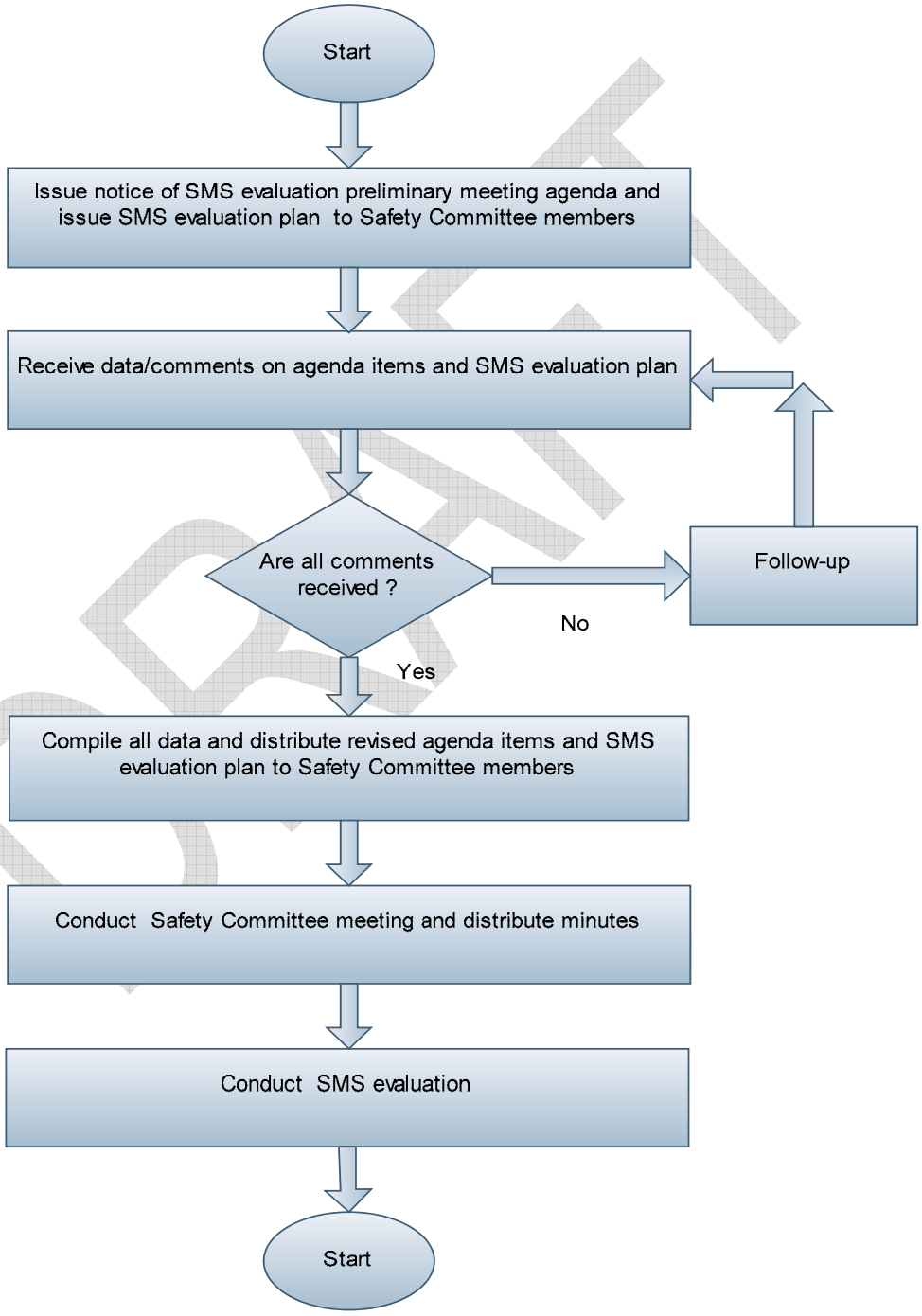


Appendix 4



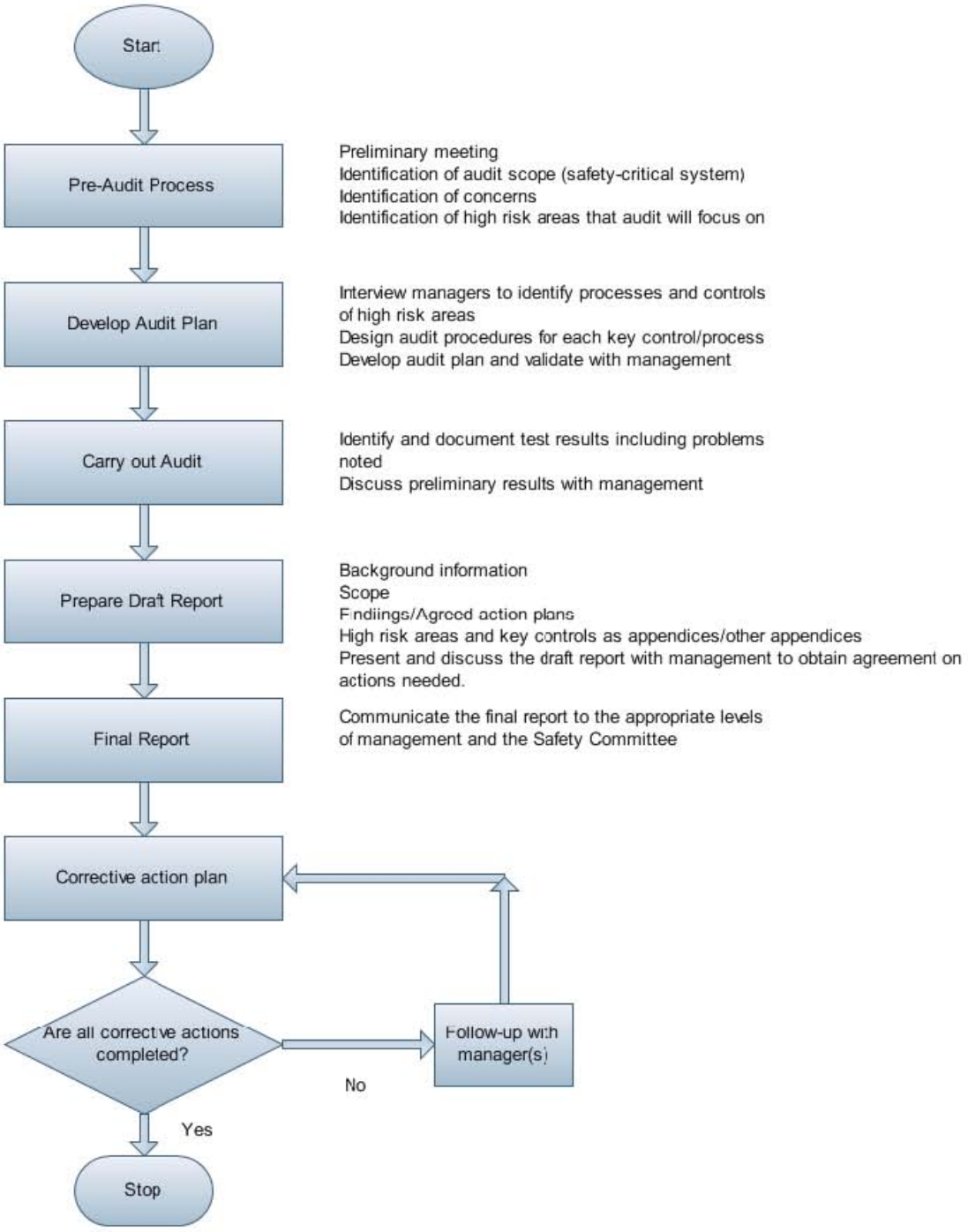
Appendix 5

SMS Evaluation Planning Process



Appendix 6

Operational Audit Process



Appendix 7

SMS Evaluation process