King County

Safety Management System (SMS) Manual
King County International Airport Boeing Field

March 2010

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INTRODUCTION

In February 2007 the Federal Aviation Administration (FAA) issued Advisory Circular, AC 150/5200-37, *Introduction to Safety Management Systems (SMS) for Airport Operators*, to introduce the concepts of Safety Management Systems (SMS). The FAA has also opened a rulemaking project to consider formal requirements for SMS at certified airports. In support of this rulemaking effort, the FAA has initiated a pilot program to assist selected airports in the development of an SMS specific to their situation and operations, and to share in the future their acquired experience on SMS development and implementation with other airports and the FAA.

The King County Department of Transportation Airport Division (County) has decided to take a leadership role in the development and implementation of SMS at the King County International Airport Boeing Field (BFI) by participating in the FAA pilot program. The County will be able to use the SMS at BFI as a guide to developing and implementing the SMS.

In October 2009, a Gap Analysis for BFI was developed as per FAA guidelines for the pilot program. The Gap Analysis was completed and accepted by King County in October 2009.

This document is a working draft of the SMS Manual for discussion with the BFI management. As a working draft it includes the rationale and logic of how the draft SMS Manual was developed. The final SMS Manual will not show this rationale.

i. Copyright

ii. Control of SMS Documents

The SMS Safety Manager at BFI established under the Safety Management System (SMS) at the Airport shall be responsible for controlling the preparation, verification, revision and distribution of the SMS Manual and related SMS Forms.

RECORD OF AMENDMENTS

Amendment No.	Subject	Updated By	Date

1. SAFETY POLICY AND OBJECTIVES

1.1 The Need for Safety Management Systems (SMS)

The intent of SMS is to improve aviation safety. Although the elimination of aviation accidents is a desirable goal, no human activity or human-made system can be guaranteed to be absolutely safe. Failures and errors will occur in spite of best efforts to avoid them. Although major air disasters are rare events, a whole range of incidents occur more frequently. Ignoring these underlying safety hazards could pave the way for an increase in the number of more serious accidents.

The air transportation industry's future viability may well be predicated on its ability to sustain the public's perceived safety while traveling. The management of safety is therefore a prerequisite for a sustainable aviation business.

The application of SMS at an airport can contribute to this effort by increasing the likelihood that airport operators, and other stakeholders, will detect and correct airside safety problems before they result in an accident or incident.

There are many clear benefits of establishing and implementing an SMS. These benefits include:

a) Prevent and Reduce Injuries to Airline Passengers and Airport Personnel

Properly planned and executed SMS anticipates and addresses safety issues before they lead to an incident or accident that can injure passengers and employees working at an airport. An SMS also provides the management of an airport with the ability to deal effectively with accidents and incidents so that valuable lessons are learned and applied to improve safety.

b) Reduce the Economic Impact of Accidents

The costs of a major accident at, or near, an airport, with injuries to people and damage to property, can threaten the financial viability of the airport. Direct costs are the obvious costs for rectifying, replacing or compensating for injuries and airport property damage. There are also other costs which may not be as obvious, may be delayed over time and may eventually be higher than direct costs.

These other costs could include:

- Loss of revenues if flights are cancelled or airlines cease operations at the airport;
- Legal and damage claims;
- Cost of replacing and compensating injured employees;
- Increased insurance claims or denial of insurance coverage;
- Clean-up of the accident site;

- Cost of internal and government investigations; and
- Loss of use of equipment.

1.2 BFI Safety Policy

The Director of Aviation has recognized the need for, and benefits of, an effective SMS for BFI.

It is the Airport Division's policy to provide the highest reasonable standard of safety within BFI by identifying and minimizing those risks arising from airport activities which could contribute to aviation accidents and incidents.

The County and the Airport Director (Director) at BFI are committed to implementing SMS at BFI so that:

- All BFI employees involved in airside operations understand the hazards and risks in airside operations;
- All BFI personnel involved in airside operations will receive proper initial and recurrent training to do their jobs safely in order to protect themselves, other workers, passengers, cargo, aircraft and equipment;
- Proper procedures and adequate equipment and facilities are in place for safety;
- All BFI employees can report aviation safety concerns, issues, incidents and accidents without fear of negative personal consequences or reprisal;
- When safety concerns are identified, they will be analyzed and appropriate action will be taken;
- All BFI employees working airside are updated on safety issues by their management;
- Safety information is effectively exchanged among all key tenants at BFI; and
- Continual improvements to airside safety can be made.

Safety is an integral part of the provision of an efficient, effective airport system. All managers and supervisors are accountable for safety in the performance of their responsibilities.

The County will continue to adopt explicit safety standards which comply with statutory obligations and meet, or exceed, FAA regulations and standards.

The County will develop a culture among all managers and staff which fosters an increasing understanding of the importance of safety in all of its activities and the resultant responsibilities of each individual. The County will provide the environment, support and training necessary to achieve this goal.

1.3 Safety Objectives

As a means to continuous safety improvements, the officer responsible for administering and implementing SMS (referred hereafter as the SMS Safety Manager) in consultation with other BFI managers will develop and propose annual safety objectives for approval by the Airport Director. The SMS Safety Manager will monitor performance in meeting these objectives.

The safety objectives to be implemented for the first year of operations under SMS are as follows:

1. Safety hazards identified during airport self inspections: In the first year, BFI will collect and analyze relevant data through trend analysis (e.g., type and quantity of Foreign Object Debris (FOD) and then set objectives each succeeding year (e.g., enhanced FOD reduction program in cargo area).

2. Aircraft bird strikes: BFI will record the actual number of bird strikes as a baseline. This baseline will be used to determine what, if any objectives, BFI needs to set for succeeding years.

3. Incursions of vehicles, aircraft, or pedestrians on movement areas: Without a reported incursion in the past four years, the objective would continue to be to not to have any incursions.

4. Number and type of accidents and incidents on the AOA including the controlled movement area involving air carrier aircraft and/or ground vehicles: This has not been an issue at BFI but activities on the congested ramp provide the potential for accidents. BFI will remind all operators on the ramp of hazards and safety by conducting annual safety meetings. BFI will also implement an Enforcement Plan for Airside Operations (as per Objective 2

5. Training: BFI will record the number of airside based employees who have received safety and SMS related training and maintain a record in each employee's personnel file.

6. Non-punitive safety reports: The objective in the first year is to implement non-punitive reporting and determine how well it works, and then to suggest and implement possible improvements for year two.

7. Safety Risk Management: The objective in the first year is to conduct safety risk assessments of specific safety concerns and issues raised during the development of the SMS Manual. The action plans resulting from these assessments will be prioritized for action. [Safety Risk Management procedures are detailed in Section 3.

2. ORGANIZATION FOR SAFETY

2.1 Organizational Structure

The organizational structure for safety at BFI is depicted in Exhibit 2.1.

2.2 Safety Roles and Responsibilities

This section describes the role and responsibilities of key participants at BFI for aviation safety.

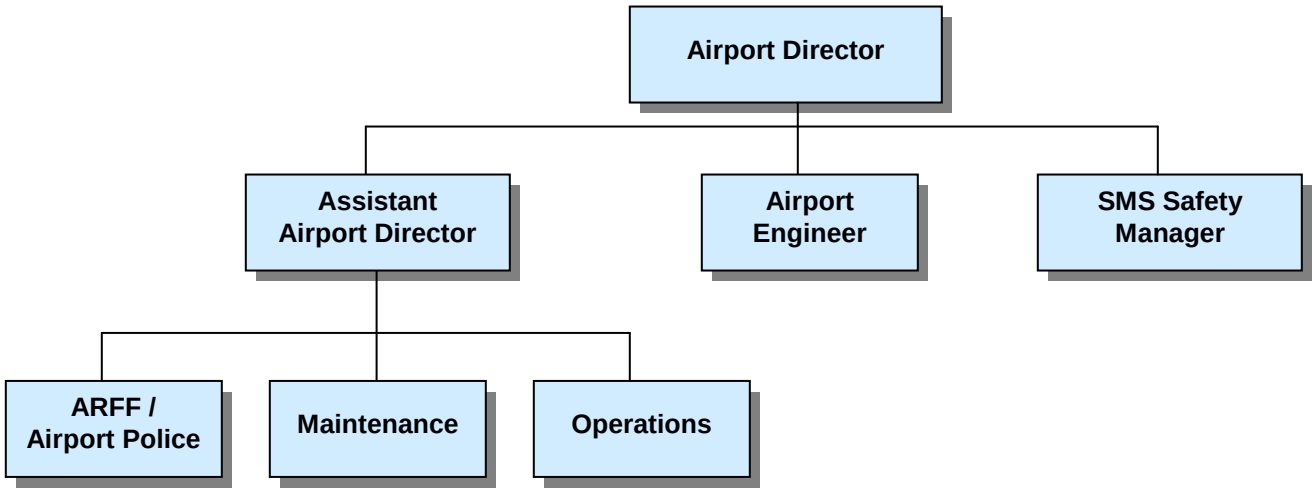

Exhibit 2-1 BFI Organization Structure for Safety

2.2.1 Airport Director

The responsibilities of the Airport Director for SMS include:

- Approval of the SMS for BFI;
- Approval of the safety policy and objectives;
- Chairing the Airport Safety Committee;
- Periodic reviews and updates of the SMS, safety policy and objectives; and
- Deploying financial and human resources, within his control, for proper execution of the SMS.

2.2.2 Assistant Airport Director

The **Assistant Airport Director** is responsible for directing the planning and overseeing the operations of the Operations/Compliance, Maintenance and ARFF/Airport Police sections at BFI. Responsibilities also include overseeing wildlife control activities and setting priorities for Snow and Ice Control activities.

2.2.3 SMS Safety Manager

The SMS Safety Manager is responsible for administering and implementing the SMS. Responsibities include:

- Participating in the Airport Safety and Security Committee, as the Secretariat;
- Leading safety risk management assessments of hazards, incidents and accidents to determine action required; [not likely to occur very frequently]
- Conducting trend analysis of safety concerns, hazards, incidents and accidents and determining action required, in consultation with other airport staff; [could be delegated]
- Ensuring appropriate action is taken in response to safety concerns, hazards, incidents and accidents;
- Keeping records of all safety related reports, incidents and accidents, and conducting trend analysis;
- Providing and coordinating safety promotion;
- Ensuring the provision of safety training for airport employees and tenants located or working in the AOA;
- Implementing a non-punitive reporting system;
- Ensuring that safety audits are conducted when required;
- Measuring safety performance in relation to safety objectives; and
- Annual review of the safety policy and safety objectives.

2.2.4 Airport Operations and Compliance Section

The **Airport Operations and Compliance Section** (Operations) is responsible for:

- Daily (3), weekly, monthly and random inspections of runways and taxiways, roadways, airfield lighting, beacon, fencing and vegetation growth. The daily inspections include observations of hazardous wildlife. These activities are conducted in conjunction with ARFF;
- Issuance of NOTAM's;

- Monitoring non-compliant inspection findings until resolved;
- Assigning gates on the public aprons;
- Acting as the Coordinator of the Wildlife Hazard Management Program;
- Reporting of wildlife strikes to the FAA Wildlife Incident Data Base;
- Dispersal of observed wildlife in conjunction with ARFF;
- Issuing Surface Condition Reports;
- Monitoring any construction sites as to safety and compliance;
- Staffing and operating the Airport Snow Desk;
- Patrols of airport operational areas to monitor and control, as required, the movement and parking of aircraft, vehicles and support personnel;
- Implementation and compliance monitoring of access control and identification programs;
- Development and implementation of FAR Part 139 compliance training, including wildlife monitoring and control;
- Driver's Training Program: and
- Managing the Airport's Certification including the Airport Certification Manual.

The role of the Airport Operations and Compliance Section in administering and implementing the SMS would include:

- Participating in the Airport Safety Committee;
- In consultation with the SMS Safety Manager, set annual safety objectives and provide relevant performance data to the SMS Safety Manager; and
- Participating in Safety Risk Management Assessments as and when required per Section 3.

2.2.5 Maintenance Section

The **Maintenance Section** has important responsibilities that impact aviation directly. These responsibilities include:

- Maintaining the concrete and asphalt integrity of all runways, taxiways, associated safety areas and ramps to provide a high level of physical safety;
- Maintaining airfield lighting system, visual aids and ramp lighting systems;

- Maintaining runway and taxiway paint markings;
- Runway rubber removal maintenance to comply with FAA Standards;
- Implementing the winter snow and ice control program of runways and taxiways and ramps controlled by BFI;
- Issuing Surface Condition Reports;
- Maintaining service roadway system;
- Installation, cleaning and replacement of signs on all AOA and access roads for safety to prevent vehicle and aircraft accidents;
- Maintaining the perimeter fence line to prevent wildlife and unauthorized persons from entering the AOA to provide for safe aircraft operations;
- Taking corrective action to rectify non-compliant condition identified by airport inspections; and
- Maintaining all airfield lighting for runways, taxiways, and ramps.

For SMS, the Maintenance Section's responsibilities include:

- Participating in the Airport Safety Committee;
- In consultation with the SMS Safety Manager, set annual safety objectives and provide relevant performance data to the SMS Safety Manager; and
- Participating in Safety Risk Management Assessments as and when required per Section 3.

2.2.6 ARFF/Police Section

The **ARFF/Airport Policing Section** provides Aircraft Rescue and Firefighting Services equipment and personnel in accordance with FAA Part 139.319 requirements. Extensive training is provided to meet there regulatory requirements.

The Fire Department has two (2) ARFF vehicles with at least one operator for each vehicle available at all times during operating hours of the airport. BFI' Aircraft Rescue and Fire Fighting (ARFF) is a 24/7 operation.

ARFF conducts airport inspections, including the monitoring and dispersal of wildlife in conjunction with Operations and will conduct inspections when Operations staff is not available. ARFF is also responsible for conducting inspections of fuel farm/storage and mobile fuelers and conducting building fire safety inspections. ARFF is authorized to issues Surface Condition Reports.

The ARFF/Airport Police Section is part of the King County Sheriff's Office. At the time of the adoption of this Plan all but two ARFF personnel are fully trained and qualified law enforcement officers, providing policing services at BFI.

For SMS, ARFF's responsibilities would include:

- ✈ Participating in the Airport Safety Committee;
- ✈ In consultation with the SMS Safety Manager, set annual safety objectives (e.g., fuelling inspections) and provide relevant performance data to the SMS Safety Manager; and
- ✈ Participating in Safety Risk Management Assessments as and when required per Section 3.

2.2.7 Airport Engineer

The Airport Engineer is responsible for the design, scheduling, bid preparation/evaluation/approval, and monitoring of major maintenance and capital projects and retains and manages consultants related to the Capital Improvement Program. This position is responsible for monitoring and inspecting the work of contractors and vendors and ensuring that they follow construction practices that ensure safe airside operations.

As part of SMS, the Airport Engineer will participate in the Airport Safety Committee and Safety Risk Management assessments. If appropriate, this person will also participate in the annual setting of safety objectives.

2.2.8 Air Traffic Control Tower

The air traffic control tower is responsible for air traffic control at and near the airport, as well as vehicle control on the movement areas through prescribed protocols. As part of SMS, they should report all incursions on the movement areas to the SMS Safety Manager. They should participate in the Airport Safety Committee and participate in BFI's Safety Risk Management assessments when the assessments deal with hazards or incidents on the movement areas.

2.3 Tenants at the Airport

Tenants at BFI such as the airlines, general aviation and FBO's have full accountability and authority for safety within their respective area of operation.

As part of their safety responsibilities, tenants are required to have in place safety training and safety plans subject to audit by BFI.

2.4 Airport Safety Committee

2.4.1 Roles and Responsibilities

With regard to safety, the Airport Safety Committee is a body of expertise to address and provide advice on safety issues at BFI.

The specific terms of reference for the Airport Safety Committee regarding aviation safety are as follows:

1. Provide a forum to discuss aviation safety matters affecting the Airport and its users;
2. Help identify hazards and risks and advise on safety measures to improve safety;
3. Review safety practices and procedures and recommend any necessary changes, for example:
   - ✈ Severe winter storms, fog diversions;
   - ✈ Control of security gates;
   - ✈ Coordination of departing or arriving aircraft on ramps and aprons (uncontrolled areas); and
   - ✈ Winter maintenance procedures, Air Traffic Control Tower (ATCT), Letter of Agreement's (LOA's) and deicing to ensure aircraft are deiced within prescribed time limits.
4. Review airport safety rules (regulations);
5. Review reports on safety hazards/risks, incidents and accidents and action taken, or proposed;
6. Review audit reports and action taken or proposed;
7. Provide advise on methods to develop and promote apron safety awareness initiatives, such as poster campaigns and safety presentations/exhibitions;
8. Provide advice on safety measures to be incorporated in airport construction, including safety and phasing plans; and
9. Review any runway incursions and recommend any changes to operating procedures.

2.4.2 Membership of the Committee

The Airport Safety and Security Committee consist of senior managers representing their organizations with the capacity to make decisions and deploy resources. The following organizations are included:

- ✈ The Airport Director (Chairperson);
- ✈ The SMS Safety Manager (Secretary);
- ✈ Assistant Airport Director;
- ✈ The Control Tower Manager;

- The station managers for the airlines at BFI;
- A member of the general aviation (GA) tenant community; and
- A manager from each of the fixed based operators (FBO's).

2.4.3 Airport Safety Committee Meetings

The Airport Safety Committee is chaired by the Airport Director. The SMS Safety Manager will provide Secretariat services to the committee.

The Airport Safety Committee meets at least bi-annually. It may meet more regularly if warranted and called for by any one member. The SMS Safety Manager will prepare and distribute meeting agendas in a timely manner together with any relevant papers for members' consideration. All members may submit potential agenda items.

There will be a full distribution of minutes of meetings. Any actions arising from meetings will be annotated in the Minutes and these action items will remain in the minutes until the required action is completed. The SMS Safety Manager will monitor action items being taken and review progress made by those responsible for taking action.

The Committee may from time to time establish and nominate special Working Groups to consider and report on particular safety issues.

2.5 Overview of Airside Safety Responsibilities

Everyone working airside has a role to play in ensuring the safety of people, aircraft, vehicles and equipment. For example, anyone working airside should report any potential hazards that they see.

A summary of key responsibilities and accountabilities for airside safety have been listed for BFI Management, ATC, the airlines, ground handlers, fixed base operators and fueling companies in Exhibit 2-2. The list is meant to provide for illustrative purposes only and may not capture all aviation activities on the AOA.

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Exhibit 2-2. Key Responsibilities and Accountabilities

	Airport Infrastructure and Services	Aircraft Operations	Passenger Movements	Vehicle Operations
BFI Management, Operations, ARFF/Police & Maintenance	Provide safe infrastructure and services including: - well maintained runways, aprons, taxiways and other maneuvering areas, and equipment - fully functioning runway, taxiway and apron lighting, - snow removal and ice control, - runway and apron markings and signage Ensure wildlife and bird control. Provide adequate apron flood lighting. Ensure provision of adequately trained and equipped Emergency Fire and Response services. Implement Safety Management System. Safe storage of hazardous materials. Sweep runways as required. Safe construction of facilities. Report to FAA on condition of movement areas. Daily inspections of FOD on runways, taxiways and aprons.	Observe that safe practices are being followed. Pickup any FOD. Provide and empty FOD bins. Provide safety vests to all BFI airport airside employees. Provide noise protection to airport employees. Ensure that all airside personnel are using safety vests and ear protection.	Support airlines in passenger movements by monitoring guidance provided by airlines/ground handling firm agents	Set policies and practices on safe vehicle operations including issuing of driver and vehicle permits. Provide basic training in airside vehicle operations. Monitor vehicle operations to ensure safe practices are being followed. Establish designated vehicle lanes on the aprons and other areas of the airport Ensure airport vehicles are properly equipped and maintained Monitor vehicle movements prior to aircraft movement and taxiing.
Airport ATC	Report on conditions of the movement area and related areas to the SMS Safety Manager. Monitor hazard beacons and airside lights and report outages	Provide guidance for aircraft landing and departure. Control aircraft movement on airfield movement area.		

Exhibit 2-2. Key Responsibilities and Accountabilities (Cont'd.)

	Airport Infrastructure and Services	Aircraft Operations	Passenger Movements	Vehicle Operations
Airlines, aircraft owners & FBOs	Report any safety concerns or potential hazards to the SMS Safety Manager	Servicing of the aircraft. FOD inspections on aprons. Pickup any FOD. Provide safety vests, noise protection and other safety equipment to employees. Pilot in Command has overall responsibility for safety of aircraft and passengers. Ensure that cell phones are not used within 50 feet of a refueling aircraft Enforce no smoking on apron with employees and passengers Remove garbage and grooming waste from apron as soon as possible after collection Employees are not to run on apron Provide training of marshallers Ensure that marshallers are in place at least 5 minutes before aircraft arrival Marshall aircraft in and out of parking stands.	Lead passengers safely to and from aircraft by most expeditious and safe route either to the terminal or passenger bus. Monitor passenger route to aircraft and report/correct any hazards that may develop. Warning passengers not to run, to walk in designated areas, not to smoke, not to use cell phones within 50 feet of refueling operations, not to throw trash, etc. Monitor passenger movement prior to aircraft engine start and aircraft movement.	Establish and implement vehicle safety policies and practices specific to aircraft being serviced Augment basic driver training provided by the airport.
Fueling Companies	Report any safety concerns or potential hazards to airport SMS Safety Manager.	Provide training in safe fueling of aircraft. Establish and implement policies and practices for safe fueling and fuel storage. Pickup any FOD. Clean up small fuel spills. Reporting large fuel spills more than 5 gallons to BFI. Where more than one vehicle is used ensure that the operations are coordinated.		Provide properly equipped and maintained fueling vehicles, fuel storage facilities and equipment.
GA Community	Report any safety concerns or potential hazards to airport SMS Safety Manager.	Comply with ATC instructions. Comply with BFI rules and regulations.	Ensure GA passengers stay off movement areas	No unauthorized driving on movement areas

3. SAFETY RISK MANAGEMENT

3.1 Introduction

Risk is a by-product of doing business. Not all risks can be eliminated, nor are all conceivable risk elimination measures economically feasible. The risks and costs inherent in aviation require a rational process for decision-making to weigh the probability and severity of any adverse consequences implied by the risk against the expected cost of reducing the risk. This process is known as *"risk management".*

In other words, risk management facilitates the balancing act between assessed risks and viable risk mitigation. Risk management is an integral component of safety management. It involves a logical process of objective analysis, particularly in the evaluation of the risks.

The Safety Risk Management (SRM) process is important because it can:

- ✈ Control the risk of an accident before any harm is done;
- ✈ Supply useful information for the development and implementation of measures to control safety and minimize the possibility of accidents;
- ✈ Determine if existing or planned safety measures are adequate; and
- ✈ Provide BFI management with valuable information about potential hazards and dangers that may be under estimated or overlooked in daily operations.

3.2 Application and Responsibilities

A formal SRM process will be conducted when:

1. There is a significant accident or incident;
2. There is a negative trend in safety-related airport inspections, safety events or safety infractions;
3. When there is concern that established practices and procedures, equipment or facilities are not as safe as they could be;
4. The airport is undergoing significant change such as increases in air services or contraction in services;
5. Major changes are planned, including changes to equipment, runways and taxiways, airfield systems, key personnel, ground operations, air traffic control operations, staffing levels, etc;
6. When new equipment or systems are being installed; and
7. When new facilities are going to be constructed on the airside.

BFI's SMS Safety Manager will take the lead role in Safety Risk Management (SRM) for operational issues at BFI. The SMS Safety Manager will enlist other BFI staff and selected tenants and ATC where appropriate to provide a wide perspective and expertise in conducting

the analysis. A committee should be created where warranted. This committee would be designated the Safety Risk Assessment Team.

The Airport Engineer will be responsible for conducting Safety Risk Management when new facilities, equipment, systems are planned or being installed. The Airport Engineer will keep the SMS Safety Manager informed of these projects

3.3 The Safety Risk Management (SRM) Process

The SRM Process is summarized schematically in Exhibit 3.1 and described below.

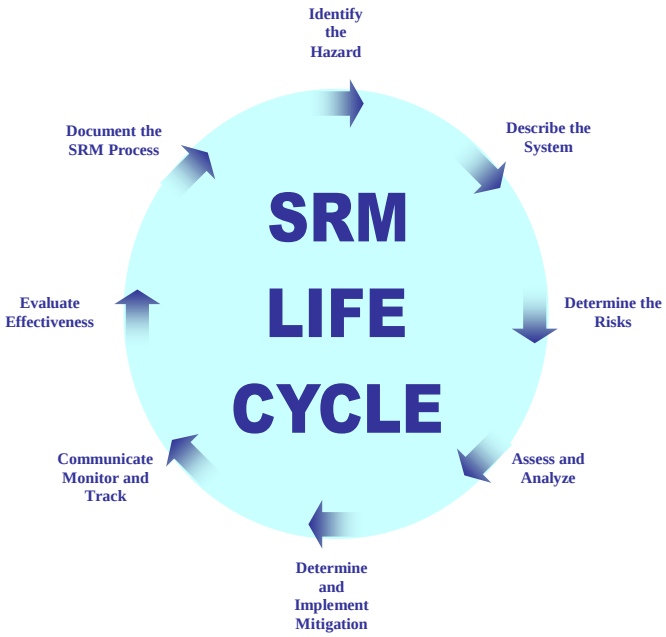

Exhibit 3-1. Safety Risk Management Process

3.3.1 Identify the Hazard

According to the FAA, a hazard is *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*. More simply stated, a hazard is an event or situation that could result in an accident involving aircraft, equipment or people.

A hazard is a condition that is a prerequisite to an accident or incident. A hazard is not a danger by itself. You need certain conditions for a hazard to create the potential for resulting in an accident. For example:

- Rubber build up also needs a wet surface to reduce skid resistance
- Unsecured storage containers need wind or jet blast that could set containers in motion and strike an aircraft or person
- A vehicle incursion needs an aircraft arriving and departing at the same time and some location on the runway to cause an accident

The AOA of any airport can have numerous hazards that may bring about accidents or incidents if not properly mitigated or prevented. Exhibit 3-2 provides examples of typical potential airside hazards. This exhibit should not be considered as a complete list of potential hazards but only as examples of some of the hazards that may occur.

The source of potential hazards is wide and may not be immediately obvious. Examples include:

- ***Design factors***, including equipment and task design;
- ***Procedures and operating practices***, including their documentation and checklists, and their validation under actual operating conditions;
- ***Communications***, including the medium, terminology and language;
- ***Personnel factors***, such as policies for recruitment, training and remuneration;
- ***Organizational factors***, such as the compatibility of operational and safety goals, the allocation of resources, operating pressures and the corporate safety culture;
- ***Work environment factors***, such as ambient noise and vibration, temperature, and lighting; and
- ***Regulatory oversight factors***, including the applicability and enforceability of regulations; the certification of equipment, personnel and procedures; and the adequacy of surveillance audits.

Exhibit 3-2 Potential Airside Hazards

Aircraft Operations and Servicing	Vehicle Operations	Actions of Individuals	Airport Infrastructure and Services	Environmental Conditions
• Jet blast and noise • Prop wash • Fuel spills • Grounding • Bonding • Spills • Improper parking • Improper marshalling • FOD • Apron • Congestion • Noise • Lack of protective pylons around aircraft • Lack of chocks when aircraft parks • Disposal of grooming waste • Traveling too fast • Failure to respond to ATC directions	• Erratic driving • Driving too fast • Mechanical Condition • Condition of brakes, tires • Improper parking • Parking in aircraft operations areas • Blocking fuel truck when fueling • Improper grounding of equipment • Leaving vehicle unattended and engine running • Lack of hazard lights • Lack of radios or communication equipment • Lack of coordination between vehicles during aircraft servicing • Lack of reverse alarms • Lack of guidance on reversing • Failure to yield right of way to aircraft and pedestrians • Oil spills on apron and/or in passenger walkways	**Employees** • Running on ramp • Lack of safety protective equipment • Riding baggage carts • Riding in rear of pick-up trucks • Lack of training • Using equipment in an improper manner • Ignoring aircraft hazard beacons • Improper checking around aircraft during departure marshalling • Ignorance of meaning of apron markings • Smoking on ramp • Use of cell phone within 50 feet of a refueling operation • Improper guidance to passengers • Throwing trash and/or equipment on apron • Failure to use FOD bins • Under the influence of drugs or alcohol **Passengers** • Failure to follow guidance • Wandering on apron • Smoking • Use of cell phone within 50 feet of a refueling operation • Throwing trash on apron • Running on apron **Others** • Individuals on airside without authority	**Airport facilities** • Poor runway condition • Poor apron condition • Failure of one or all runway lights • Poor illumination of apron lights • Lack of FOD bins • Lack of fire extinguishers • Lack of training for staff • Poor apron marking visibility • Construction on airside **Fire Service** • Lack of training in aircraft fire fighting • Lack of appropriate equipment for fuel/aircraft fires • Lack of training in fuel facilities **Maintenance Garage** • Improper storage of hazardous materials • Improper storage of equipment and supplies • Lack of vehicle maintenance **Air Traffic Control** • Obstruction to visibility of all movement areas • Lack of visibility for taxiway entrances to runway	• Birds • Wildlife • Adverse weather • Marking of natural hazards • Confusing lights

The identification of hazards is the responsibility of all airport employees and tenants. There are formal procedures in place to identify hazards, such as the airport self-inspection program. Furthermore, all those working on the airside are encouraged to identify events or situations that could compromise safety. The SMS includes an employee reporting system described in Section 4 of the SMS.

3.3.2 Describe the System/Existing Controls

This step in the SRM process (particularly for major changes to equipment, runways and taxiways, airfield systems, key personnel, ground operations, air traffic control operations, staffing levels, etc.) describes the system under consideration. The system description should include the System under consideration and Existing Controls (System State).

The System State describes the following factors within which potential hazards exist:

- Configuration of the runways, taxiways, aprons, terminals, signage, markings, lighting, etc.
- Relevant operations such as maintenance, construction, ramp operations, fueling, passenger and aircraft movements, air traffic control coordination and vehicle operations. The interaction of associated personnel and equipment involved in these operations.
- Volume of activity such as aircraft traffic and communications.
- Ambient conditions such as temperature, humidity, light, precipitation, visibility.

The System State also describes the controls that are currently in place associated with a hazard (e.g., driver training programs, airport self-inspections, airport markings and signage) to assist in determining the risks of the hazard and action strategies to reduce the risk.

The relative importance of these factors and the amount of effort in documenting these factors will depend on the potential hazard (or hazards) under consideration.

3.3.3 Determine the Risks

This task determines the risks of identified hazards in terms of the potential consequences or effects of the hazards; including injury, illness, or death to people; damage to or loss of a system, equipment, or property; or damage to the environment. In other words, what possible harm could result from an accident or incident that could potentially result from the hazard?

The potential accident should be described; e.g., a collision between an aircraft and a vehicle.

In determining the potential consequences of a hazard, one needs to ask "what if" other conditions, or contributing factors, could happen to turn a hazard into an accident such as:

- Poor visibility,
- Aircraft arriving or departures when the hazard occurs,
- Precipitation,
- Vehicles on the active runway,
- Passengers or

- Employees near aircraft, etc.

3.3.4 Assess and Analyze the Risk

In this task, the level of risk is determined. Risk is the composite of the predicted severity of the potential consequences and the likelihood that the consequences could occur.

Likelihood is the estimated probability or frequency in quantitative or qualitative terms that the consequences of a hazard (i.e., accident, incident, harm) could happen. There generally is no meaningful quantitative data for conducting SRM at an airport using numerical methods. Thus, a qualitative approach is usually required. This provides a formalized and consistent approach to assessing safety risks.

The relative rankings of the likelihood for use in SRM are given below:

- Frequent – likely to occur often
- Probable – likely to occur several times
- Remote – possible to occur sometime
- Improbable – unlikely but possible to occur

In determining the level of risk, the severity of the potential consequences is also predicted. The levels of severity for use in the SRM are presented below along with a guide to their application.

Criteria/Level of Severity	Minor	Moderate	Major	Catastrophic
Impact on operations	Very limited, or no, damage to aircraft, vehicles or equipment. Minor operational delays	Repairs to damaged aircraft, equipment or vehicles. Some operational delays.	Extensive repairs or replacement of aircraft, equipment or vehicles. Major operational delays.	Aircraft destroyed
Impact on people	Only 1 or 2 individuals involved. First aid treatment may be required. No lost time.	Medical treatment required in hospital or emergency clinic. Lost time due to injuries.	Extensive injuries to a number of people. Possible death of 1 or 2 individuals	Multiple deaths, extensive injuries
Financial loss	No, or very, limited financial loss. (e.g., less than $10,000)	Notable costs. (e.g., $10,000 - $100,000)	Major costs. (e.g.,$100,000 - $1,000,000)	Multi-million dollars. (e.g., >$1m)
Impact on reputation	No media attention.	Some media attention.	Strong regional media attention, loss of public confidence.	High profile national or international media attention. Severe loss of public confidence

There will always be risks involved in aviation operations. Some risks can be accepted, some can be eliminated, while others can be reduced to acceptable levels. Once the likelihood and the severity of the possible consequences (or accidents) have been assessed, the next step is to analyze the relative rating of the risk (high, medium or low) by using the following matrix.

POTENTIAL CONSEQUENCE RISK MATRIX				
	SEVERITY			
LIKELIHOOD	Minor	Moderate	Major	Catastrophic
Likely	Medium	Medium	High	High
Possible	Low	Medium	High	High
Remote	Low	Low	Medium	Medium
Improbable	Low	Low	Low	Low

The risk ratings used in the matrix are defined as follows:

High risk: A high risk is unacceptable. Management needs to take **immediate action** to mitigate or eliminate the hazard for an existing condition. For planned changes to equipment, systems, operations, etc. management, the change cannot be implemented unless the potential hazards are further mitigated to medium or low levels.

Medium risk: Management will react to mitigate or eliminate the hazard as expeditiously as possible within existing resource constraints. In the short term, the risk is tolerable.

Low risk: This level of risk is considered acceptable and no further action is required unless the risk can be reduced further, or eliminated, at little or no effort.

Factors that may be considered when evaluating risk, particularly whether a risk is acceptable are as follows:

- Managerial. Is the risk consistent with BFI's safety policy and objectives?
- Affordability. Does the risk defy cost-effective resolution?
- Legal. Does the risk conform to current FAA regulatory requirements?
- Cultural. How will the airport's employees and other stakeholders view this risk?
- Market. Will BFI's competitiveness relative to other airports be compromised?
- Political. Will there be a political price to pay for not reducing or eliminated the risk?
- Public. What will be the reaction of the media or special interest groups regarding the risk?

3.3.5 Determine and Implement Mitigation Measures

If the SMS Safety Manager and the Safety Risk Assessment team have determined that the risk is acceptable then no further action is required other than documenting the previous Safety Risk Management steps.

If a risk is deemed medium or high, then measures are required to reduce the risk in terms of severity and/or likelihood to an acceptable level. Before the mitigation measures are finalized, approved and implemented, the residual risk of the hazard and potential consequences should be determined by repeating the SRM process until a measure or combination of measures is found that reduces the risk to an acceptable level.

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If required and time allows, final approval of the plan shall be given by the Airport Director. The accountable BFI manager will be responsible for ensuring that the safety action plan is implemented.

Where the action plan involves expenditures beyond the authority of the Airport Director, the recommendations will be forwarded to the Director of the Department of Transportation for consideration and action

Potential mitigation measures could include:

- An infrastructure solution including such options as rehabilitation, reconstruction or new facilities;
- Changes or modifications to equipment or maintenance programs;
- The issuance of Airport Safety Directives that could include consideration of changes to operating procedures and/or new procedures;

- Airport Safety Guidelines that could include such items as limiting exposure to the risk, increased surveillance of the hazard or activities associated with it, improved supervision, targeted safety advice etc.;
- Physical barriers or processes imposed on the system state to lessen likelihood and/or seriousness of the hazard to cause an accident or incident;
- Safety training which could include the provision of new on-site training programs and/or modifications to existing safety training programs;
- Provision of safety information and the provision of specific safety brochures, posters, etc.; and
- Restrictions on an individual's right and ability to work on the airside.

If a hazard and its associated risks are primarily the responsibility of a tenant, the tenant will be responsible for developing their own mitigation measures when requested by BFI's senior management.

3.3.6 Monitor and Track Implementation

The SMS Safety Manager will monitor and provide regular (at least quarterly) written updates on the status of implementation of mitigation measures to the Airport Director and where appropriate the Airport Safety Committee.

The SMS Safety Manager will also assess the actual implementation of a mitigation measures to ensure that no new hazards are introduced. This assessment should take place within one or two months depending on how often a task or initiative is performed and how long the system reaches a new "steady state".

3.3.7 Document the Safety Risk Assessment

Safety reporting methods are an essential tool for tracking and collecting critical information for analysis and mitigation of hazards. Consistency in collecting critical data is best performed through the use of well designed reporting form, which details the specific information essential for further analysis. Collected data can then be integrated into airport safety records for long term trend analysis. The application of the SRM process will be documented in the SRM Hazard Analysis Worksheet. This form is provided in Appendix 1.

The documentation will be stored and maintained in hard copy and electronic copy.

4. SAFETY ASSURANCE

4.1 Introduction

SMS Safety Assurance augments existing BFI practices and procedures to ensure airport safety including:

- The airport self-inspection program;
- The Terminal Ramp Management Plan [identified during the Gap Analysis]
- The Wildlife Hazard Management Plan;
- Storage and handling of fuel;
- The Airport Certification Manual (ACM);
- The Airport Emergency Plan (AEP) included in the ACM;
- Airport condition reporting including the issuance of NOTAMS;
- Accident and incident reporting, as part of pedestrian and ground vehicle control programs; and
- Construction safety plans.

4.2 Employee Reporting System

This section of the SMS addresses non-punitive employee reporting, systematic safety reviews, safety oversight and auditing.

To further enhance airport safety by identifying safety hazards, all employees of BFI working on the AOA are encouraged to report any accidents, incidents, potential hazards or safety concerns that they observe or are involved in. Examples include: a driver not stopping for passengers, airside personnel potentially exposed to jet blast, FOD receptacles not emptied, vehicles left unattended on the apron, confusing signs, poor lighting, etc.

BFI employees are encouraged to prepare a written Employee Safety Report using the form provided in Appendix 3. The form is available from the SMS Safety Manager. The employee should submit the Employee Safety Report to the SMS Safety Manager. An employee may also make a verbal report to the SMS Safety Manager who will assist in preparing the written Safety Report. If the employee wishes his or her name to be confidential for any reason, then this should be indicated on the Employee Safety Report.

The SMS Safety Manager will investigate the concern or hazard and provide a response to the initiator of the report. If necessary, a Safety Risk Management Assessment will be conducted.

4.3 Non-Punitive Reporting Policy

The purpose of any investigation of an accident, incident or safety hazard is to establish the facts and cause, and, where necessary, take measures to prevent further occurrences.

The County believes that free and full reporting of incidents and accidents is a primary aim and that every effort will be made to avoid action that may inhibit reporting. County Management will not take any disciplinary action against an employee reporting a safety incident or accident even if a reported incident or accident indicates an unintentional mistake by the employee.

This reporting policy does not apply to criminal acts, deliberate violations of safety regulations and safe operating procedures, or gross negligence.

If requested by the employee, the Employee Safety Report will be treated in confidence. In this case, the County and its employees will not disclose the name of the person submitting a safety report unless required to do so by law. The SMS Safety Manager will de-identify the Employee Safety Report before initiating any investigation or action. All personnel and organizational names are removed from the report. Dates, times and related information which could be used to infer an identity are either generalized or eliminated.

4.4 Airfield Accidents and Incidents – Mandatory Reporting

The SMS Safety Manager on behalf of the County is responsible for ensuring that a Mandatory Safety Report is prepared for accidents and incidents on the AOA. The Safety Manager should prepare the report with the input of those that witnessed or observed the incident or accident.
The Airport's Mandatory Safety Reporting does not eliminate any regulatory requirements for reporting that have been imposed by the FAA and the County on third party operators at the airport such as an airline or the air traffic control tower.

4.5 Accident Investigation

All accidents and incidents require investigation. On behalf of the County, the SMS Safety Manager will undertake an investigation of all accidents or occurrences using the Accident and Incident Report Form contained in Appendix 4. The SMS Safety Manager will enlist whatever technical expertise that is required within BFI. If necessary, the ARFF/Police Section will participate in the investigation.

BFI's investigation does not negate any regulatory requirements for accident investigation required by FAA, federal, state or local regulations.

4.6 Systematic Reviews

Systematic review allow for assessing adherence to BFI's safety policy and achievement of safety objectives. Systematic reviews are the responsibility of the SMS Safety Manager in

consultation and coordination with the other BFI departments. Systematic reviews include the following activities:

- On-going trend analysis of accidents, incidents, self-inspection reports, NOTAMs, condition reports through information provided by the Maintenance Section, Employee Safety Reports, and investigation of accidents and incidents;
- Periodic assessments of the achievement of safety objectives; and
- Review of the proceedings of the Airport Safety Committee, safety risk assessments and safety audits.

Based on the lessons learned from these reviews (either individual or collective), the outputs of the systematic reviews could include a wide range of recommendations such as new Safety Risk Management Assessments, revisions to SMS safety policies and objectives, SMS practices and responsibilities, revisions to operational or maintenance practices, systems, facilities or equipment.

Although the SMS Safety Manager is required to make an annual review of the SMS safety policy and objectives, recommendations based on systematic reviews can be made whenever considered appropriate.

4.7 Safety Oversight

Safety oversight is the responsibility of the Airport Director. Safety oversight includes periodic reviews of how well the SMS is working, whether safety policies and objectives are still relevant, if there are negative trends in safety indicators, etc.

4.8 Safety Audits

The Airport Director will determine if and when safety audits are required.
There are two types of safety audits undertaken at the Airport.

The first safety audit is an internal audit of BFI AOA activities and includes the safety functions undertaken by:

- Airport Operations;
- Maintenance;
- Contractors; and
- ARFF/Police.

The other safety audits are external audits of the functions that are undertaken by the BFI tenants such as the airlines, FBO’s or contractors.

The above audits may be undertaken by BFI, by a specialist external auditor appointed by the County or by another airport operator retained by the County.

Tenants may also undertake independent safety audits of their operations at the Airport. The SMS Safety Manager should arrange with each of these organizations so that BFI is provided with copies of the audits and the relevant safety plans.

4.9 Record Keeping

The following records will be kept by the SMS Safety Manager for at least 3 years:

1. The original SMS Manual and subsequent revisions;
2. Annual reviews of the SMS policy and safety objectives conducted by the SMS Safety Manager;
3. Completed Safety Risk Management Assessments and associated safety action plans noting completion of action items;
4. Completed Accident and Incident Analysis Forms;
5. Minutes of the Meetings of the Airport Safety Committee;
6. Minutes of Safety Meetings;
7. Safety audit reports;
8. Safety Bulletins;
9. Description of Training Programs, who attended and when; and
10. Description of promotional activities.

All mandatory incident and accident reports will be kept for at least 10 years unless there is a legal action outstanding, or anticipated, regarding an incident or accident, and then they will be kept until the legal action is disposed of.

5 SAFETY PROMOTION - COMMUNICATIONS

5.1 Safety Communication Policy

The County is committed to ensuring that all BFI personnel working airside at the Airport are informed about the safety polices and objectives, how well the airport is meeting safety objectives, results of accident and incident investigations, new safety practices, and other matters dealing with safety.

Safety Communication will be achieved through a number of mechanisms described below.

5.2 The Airport Safety Committee

As previously described in detail, the Airport Safety Committee provides an essential partnership between Airport Management and airside tenants to share safety information and provide advice regarding safety in AOA operations. This committee meets at least semi- annually and minutes of the meeting will be distributed to all participants.

The minutes of the meetings will also be summarized and communicated to airside personnel through Safety Management Bulletins.

5.3 SMS Manual

The SMS Manual is available for review by all BFI employees working on the AOA in the SMS Safety Manager's office and posted on the BFI website. The SMS Manual will be provided to all new employees during orientation. All airport airside employees must read the document.

5.4 Safety Management Bulletins and Posters

The SMS Safety Manager will issue brief periodic Safety Bulletins. The topics of these Safety Bulletins will include, for example:

- Announcement of the new, or revised, SMS Manual and its highlights and where copies can be obtained or reviewed;
- Summaries of the minutes of Airport Safety Committee meetings, particularly action items;
- Results of incident and accident investigations emphasizing lessons learned and action to be taken to reduce potential hazards;
- Announcement of new work practices and procedures; and
- New safety rules that must be followed.

The SMS Safety Manager will issue the Safety Bulletins to each airside tenant and to each BFI employee working on the AOA.

The SMS Safety Manager will, as appropriate, prepare and display safety posters dealing with such topics as:

- Voluntary and mandatory reporting;
- Safety rules that must not be violated; and
- Safety objectives and indicators.

5.5 AOA Employee Recognition

In order to promote a safety culture at the Airport, BFI will institute a recognition program for employees of BFI, FBOs and airlines to honor an individual working on the AOA that makes a significant contribution to safety at the Airport. The award may be based on identifying and correcting a significant airside hazard, working over the course of the year in a safe and efficient manner, providing safety leadership to other airside employees, etc.

To be considered for this award, employees may be nominated by their peers or Airport Management. The employee's direct superior will endorse the nomination and forward to the SMS Safety Manager.

The award will be presented at the annual safety meeting of the New Year.

5.6 Safety Meetings

At the beginning of each year, the SMS Safety Manager will hold an annual safety meeting with all BFI AOA staff. The purpose of this meeting is to:

- Report on safety performance in meeting safety objectives;
- Summarize the initiatives and action taken, or planned, to address safety concerns and potential hazards;
- Report on lessons learned and action taken as a result of any incidents and accidents; and
- Discuss in an open forum the safety concerns that any of the participants might have.

The SMS Safety Manager will provide Minutes of the Annual Safety Meeting to the Airport Safety Committee for distribution to their AOA employees.

In addition to the annual safety meeting, the SMS Safety Manager may from time to time throughout the year conduct appropriate safety meetings to discuss safety issues at BFI as required.

5.7 Ramp Safety Campaign

BFI will establish a ramp safety campaign highlighted by Ramp Safety Week where the Airport and the tenants highlight a ramp safety issue and promote reduction of the hazard as well as cultural changes with ramp personnel.

To augment this one week targeted safety campaign, the Airport will also sponsor several safety awareness days during the year highlighting specific airside hazards such as FOD, fuel spills, etc.

6 SAFETY PROMOTION – TRAINING

6.1 Training Policy

BFI is committed through training to provide all of its employees working on the AOA with the skills and competencies to recognize and minimize aviation safety.

6.2 Existing Safety Training Programs

Driver Training

BFI has 8 security badge classification levels and provides two levels of driver training: Movement and Non Movement Area Driver Training.

Movement Area Driver Training is offered primarily to Airport Maintenance Operations and ARFF staff. After the trainee reads the applicable documentation, the trainee must write and pass a written test. Trainees are allowed to retest if they were not successful on the previous exam. The Trainee must successfully pass the test before being issued a badge to operate on the AOA.

New employees are required to pass a test conducted by Operations staff based on the American Association of Airport Executives curriculum before being issued a security badge... BFI employees are then provided two to three weeks OJT training. If the supervisor determines that the new employee has obtained the necessary skills, the employee is permitted to drive on the AOA alone. Recurrent training occurs every 12 months.

Non Movement Area Driver Training is provided to those who must work on aprons and ramps but not on the movement areas. Tenants are also required to pass the basic driver training test, and if necessary the more advanced test for driving on the movement areas. Tenants are required to conduct their own OJT.

The ACM refers to initial training and recurrent training. Training includes airport familiarization, radio operation, radio communication (including gun signals) and vehicle operations. The Airport Personnel training Matrix is found in Appendix F of the ACM.

Recurrent training occurs every 12 months with 15 badge holders tested weekly.

Per FAR 139.303: movement area badges are valid for 12 calendar months (Level 1 and 2).

Non-movement badges are valid for 24 calendar months (Level 3) and the remaining airport security badges are valid for 24-36 months depending on their level of clearance and operational need. (Levels 4-7)

Pedestrian and Ground Vehicle Training Records are maintained for twenty-four consecutive calendar months after the termination of an individual's access to movement areas.

Accident/Incidents Records are kept for twelve consecutive calendar months from the date of an accident or incident.

Inspection Techniques

The ACM, Section 327 "Self Inspection Program" refers to an initial and recurrent training every twelve months training program in addition to OJT for Inspection Techniques and Record Keeping, and AC 150/5200-18B,"Airport Safety Self-Inspection". The training material that we were provided did not include this material.

ARFF/Police Training

ARFF personnel, according to the ACM receive instruction in accordance with AC 150/5210-17, Programs for Training Aircraft and Fire Fighting Personnel. The ARFF/Airport Police Captain is responsible for maintaining the ARFF training curriculum and records of all training given to each individual for a twenty-four month period.

According to the ACM, each fueling agent at the airport is required to have a supervisor complete an aviation fuel-training safety course acceptable to the FAA. The fueling agent's supervisor is required to have recurrent training at least once every 24 months. Other employees of the fueling agent involved in fueling operations are required to have OJT and recurrent training every 24 months provided by the agent's trained supervisor. Written certification to Airport Management is required every 12 months. Records are to be maintained by ARFF.

6.3 SMS Training

As part of the training of new BFI employees working on the AOA, the SMS Safety Manager will provide an SMS training program. The curriculum includes:

- The need for SMS;
- BFI safety policies and objectives;
- Organization for safety – role and responsibilities;
- Safety risk management – including human and organizational factors;
- Safety assurance; and
- Safety promotion.

Re-current SMS training will be provided during annual refresher training sessions.

The SMS Safety Manager will record that a training session has been given to an employee. This record will be kept by the SMS Safety Manager and placed in the employee's personnel file.

6.4 Specialized Airside Tenant Safety Training

Each airside tenant at the Airport will provide specialized training in operational procedures and safety procedures applicable to their function at the airport. Examples include: fueling procedures, aircraft chocking, aircraft push-back, aircraft power back, escorting of arriving and departing passengers, movement and parking of aircraft service vehicles upon aircraft arrival and departure, aircraft marshalling, etc.

Each airside operator will submit a record of the training to their employees to the SMS Safety Manager annually.

The Airport recognizes that many of the airside operators already provide this training and keep records of their training.

APPENDIX 1

SAFETY RISK HAZARD ANALYSIS WORKSHEET

Safety Risk Hazard Analysis Worksheet

Date (dd/mm/yy):	

A. ANALYSIS

HAZARD	
Description of the Hazard:	
System State/Existing Controls:	

POSSIBLE CONSEQUENCES

Description of the Possible Consequences (accidents / incident):

Description of Contributing Factors:

Probability of the Possibility Consequences

- ❑ Improbable (not likely at all that an accident / incident could happen under any circumstances)
- ❑ Remote (accident not expected to happen under normal circumstances)
- ❑ Possible (might or could occur at some time in the future)
- ❑ Likely (will probably occur frequently in the future, or has occurred frequently in the past)

Rationale:

Severity of the Possible Consequences:

- ❑ Minor
- ❑ Moderate
- ❑ Major
- ❑ Catastrophic

Criteria/Level of Severity	Minor	Moderate	Major	Catastrophic
Impact on operations	• Very limited, or no, damage to aircraft, vehicles or equipment. • Minor operational delays	• Repairs to damaged aircraft, equipment or vehicles. • Some operational delays.	• Extensive repairs or replacement of aircraft, equipment or vehicles • Major operational delays	• Aircraft destroyed.
Impact on people	• Only 1 or 2 individuals involved • First aid treatment may be required. • No lost time.	• Medical treatment required in hospital or emergency clinic • Lost time due to injuries.	• Extensive injuries	• Deaths
Financial loss	• No, or very limited financial loss. (e.g., < $10K)	• Notable costs. (e.g., $10K - $100K)	• Major costs. (e.g.,$100K - $1M)	• Multi-million dollars. (e.g., >$1M)
Impact on reputation	• No media attention.	• Some media attention.	• Strong regional media attention • Loss of public confidence.	• High profile national or international media attention. • Severe loss of public confidence

Rationale:

Current / Initiation Risk of Possible Consequences:

- ❑ Low
- ❑ Medium
- ❑ High

	SEVERITY			
PROBABILITY	**Minor**	**Moderate**	**Major**	**Catastrophic**
Likely	**Medium**	**Medium**	**High**	**High**
Possible	**Low**	**Medium**	**High**	**High**
Remote	**Low**	**Low**	**Medium**	**Medium**
Improbable	**Low**	**Low**	**Low**	**Low**

MITIGATION MEASURES	
Identify Mitigation Measures (Corrective Actions): 1. 2. 3.	
Responsibility for Implementation (please print):	**Expected Completion Date** (mm/dd/yy**):**

NAME OF PERSON COMPLETING HAZARD ANALYSIS (PLEASE PRINT) Tel:(204)	**Signature** **Signed** (mm/dd/yyyy) **Date**

B. FOLLOW-UP

Follow-up on corrective action. Was the corrective action effective in addressing the hazard(s)? ❑ Yes ❑ No		**Date** (mm/dd/yyy): If no, identify new corrective action plan:	
NAME (PLEASE PRINT)	Telephone No. (204)	Signature Signed (mm/dd/yyyy)	Date

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APPENDIX 2

DEPARTMENT OF TRANSPORTATION
AIRPORT DIVISION
EMPLOYEE SAFETY REPORT

Employee Safety Report

REPORTING PERSON'S NAME (please print)	ORGANIZATION POSITION (please print)
[Name and position to be removed if requested by the initiator]	
DATE OF REPORT (mm/dd/yy)	Do you want your report to be treated as confidential? ❑ Yes ❑ No

A. TO BE COMPLETED BY THE PERSON IDENTIFYING THE HAZARD, INCIDENT OR ACCIDENT

Please fully describe the Hazard, Incident or Accident

Date of Occurrence (mm/dd/yyyy)	Time of Occurrence ☐ A.M. ☐ P.M.

Location:

Description of Hazard, Incident or Accident including details such as any aircraft, vehicles, equipment or people involved, weather conditions, surface conditions, contributing factors, etc. When applicable, provide sketch of accident or incident scene. Attach additional information as required.

Details of any injuries or damage:

Name of Witnesses(if an accident):

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Possible Cause (in your opinion):

B. TO BE COMPLETED BY THE PERSON INVESTIGATING THE HAZARD, INCIDENT OR ACCIDENT

SUMMARY OF THE INVESTIGATION OF THE HAZARD, INCIDENT OR ACCIDENT

SUMMARY OF THE RISK MANAGEMENT ASSESSMENT (if applicable):

Hazard(s)Identified:

Severity of the Risk:

- ❑ Minor
- ❑ Moderate
- ❑ Major
- ❑ Catastrophic

Likelihood of the Risk:

- ❑ Improbable
- ❑ Possible
- ❑ Remote
- ❑ Likely

Risk Ranking: ❑ Low ❑ Medium ❑ High

CORRECTIVE ACTION PLAN:

Summary of the Corrective Action Plan:

Responsibility for the Corrective Action (PLEASE PRINT)

Expected Completion Date: (mm/dd/yy)

SIGNATURE

NAME / TITLE (please print)	Telephone No.	Signature	Date Signed (mm/dd/yyyy)
	( )		

APPENDIX 3

DEPARTMENT OF TRANSPORTATION
AIRPORT DIVISION
ACCIDENT AND INCIDENT REPORT FORM

Accident & Incident Report

A. ACCIDENT / INCIDENT DETAILS

Date of the Accident / Incident (dd/mm/yy):

Description (attach a copy of Accident, Incident or Hazard Report (form WG2276:

Injured Persons' Name(s):

-	-	-
-	-	-

Witnesses		
Names and Phone Numbers	Contacted?	
-	❑ Yes	❑ No
-	❑ Yes	❑ No
-	❑ Yes	❑ No
-	❑ Yes	❑ No
-	❑ Yes	❑ No
-	❑ Yes	❑ No

Property Damage?

❑ Damage to aircraft by airport equipment	❑ Damage to moving aircraft	❑ Damage to vehicles
❑ Damage to equipment	❑ Damage to property / facilities	❑ Damage by wildlife
❑ Other (describe)		

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B. CAUSAL FACTORS

Mark each factor with a 'Yes' or 'No', or 'Not Applicable'. In most instances, a 'No' answer requires an explanation. In some other cases, a 'Yes' answer requires an explanation, and this is shown.

TASKS

1.	Was the task adequately described in the existing documentation (e.g., the winter ice and snow control plan)?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
2.	Was the work procedure adequate to ensure safe operations (e.g., not too complex, not confusing, understandable, physically compatible)?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
3.	Was the task free from conflict with other directions or instructions?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
4.	Was the person conducting the task instructed / trained in how to do the task?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
5.	Had the person been deemed proficient and understood the task?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
6.	Did the person follow standard practices in conducting the task?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
7.	Were safe working procedures / practices being observed?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
8.	Was there adequate time to conduct the task?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
9.	Did the person coordinate and communicate properly with people involved in the task?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
10.	Other (describe):	❑ Yes	❑ No	❑ n/a	If 'No', comment.

Provide additional details on how any of these factors may have led to the accident / incident:

EQUIPMENT / MATERIALS

1.	Did any equipment / vehicle contribute to the accident / incident?	❑ Yes	❑ No	❑ n/a	If 'Yes, provide explanation.
2.	Did the location / position of the equipment / vehicle contribute to the accident / incident?	❑ Yes	❑ No	❑ n/a	If 'Yes, provide explanation.
3.	Did the design / quality of the equipment contribute to the accident / incident?	❑ Yes	❑ No	❑ n/a	If 'Yes, provide explanation.
4.	Were the tools and materials appropriate for the existing procedures (e.g., not too complex, reliable)?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
5.	Was the equipment / vehicle in safe working order?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
6.	Was the correct equipment / vehicle being used for the task?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
7.	Was the equipment / vehicle used correctly?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
8.	Were there proper instructions in the use of the equipment / vehicle?	❑ Yes	❑ No	❑ n/a	If 'No', comment.
9.	Other (describe):	❑ Yes	❑ No	❑ n/a	If 'No', comment.

Provide additional details on how any of these factors may have led to the accident / incident:

ENVIRONMENT - Were any of the following factors present during the time leading to the accident / incident or at the time of the accident / incident (check all that apply)?

1.	High noise levels	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
2.	Hazardous / toxic substances	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
3.	Poor ventilation	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
4.	Heat	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
5.	Humidity	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
6.	Cold	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
7.	Poor visibility	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
8.	Rain or snow	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
9.	Fog	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
10.	Wind	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
11.	Inadequate lighting	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
12.	Distractions / interruptions (e.g., cell phone use)	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
13.	Other (describe):	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.

Provide additional details on how any of these factors may have led to the accident / incident:

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PERSONNEL (HUMAN FACTORS)

Were any of the following factors a possible contributor to accident / incident or at the time of the accident / incident (check all that apply)?

1.	Employee's physical (e.g., strength, dexterity, sight, hearing) and/or mental condition	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
2.	Employee fatigues	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
3.	Complacency, overconfidence or boredom	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
4.	Significant life changes	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
5.	Hours of work, or work schedules	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
6.	Training	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
7.	Qualifications	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
8.	Alcohol / drug medication	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
9.	Time pressures	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
10.	Other (describe):	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.

Provide additional details on how any of these factors may have led to the accident / incident:

MANAGEMENT / ORGANIZATION / SUPERVISION

Were any of the following factors a possible contributor to accident / incident or at the time of the accident / incident (check all that apply)?

1.	Supervisory support	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
2.	How the tasks were prioritized	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
3.	How the tasks were delegated / assigned	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
4.	Previous unsafe practices, if any, reported	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
5.	Unofficial / unspoken rules	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
6.	Allocation of resources	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
7.	Recruitment of employees	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
8.	Communications within the organization	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
9.	Compatibility of operational and safety priorities	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
10.	Funding	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.
11.	Other (describe):	❑ Yes	❑ No	❑ n/a	If 'Yes, explain.

Provide additional details on how any of these factors may have led to the accident / incident:

ANY OTHER FACTORS

Provide a description of any other factor not listed above that may have lead to the accident / incident.

1. Factor: Explain how this factor possibly contributed to the accident / incident

2. Factor: Explain how this factor possibly contributed to the accident / incident

3. Factor: Explain how this factor possibly contributed to the accident / incident

C. CONTRIBUTING AND ROOT CAUSES

Based on the analysis above, what were the contributing causes?

Based on the analysis above, what were the root causes?

NAME (PLEASE PRINT)	**Telephone No.** ( )	**Signature**	**Date Signed** (mm/dd/yyy)