



# Southeastern Aviation Safety Management System Manual



**Southeastern Aviation Sciences Institute  
Southeastern Oklahoma State University  
Durant, OK 74701**

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## 1.0—INTRODUCTION

### 1.1—BACKGROUND

Southeastern Aviation Sciences Institute (SASI) Safety Management System has been developed from guidance contained in ICAO Document 9859: *Safety Management Manual*, Transport Canada Advisory Circular AC 107-001: *Guidance on Safety Management Systems Development*, and FAA's *Safety Management System Framework Guide and SMS Assurance Guide* (revisions dated July 15, 2009). Much of SASI's SMS Manual has used the SMS Toolkit authored by the International Helicopter Safety Team (2009). We acknowledge and thank the International Helicopter Safety Team (<http://www.ihst.org/>) for their permission to use and copy their SMS Toolkit into Southeastern's SMS.

Southeastern has implemented a full Safety Management System (SMS) which, in theory, should encompass all its aviation operations. The SMS has been modeled after the ICAO SMS structure and follows the four-pillar model of SMS implementation focused on the creation of a just safety culture. The contents of our SMS manual and the definitions of the four pillars of the SMS are shown in the sections below.



Table 1: The Four Pillars of SMS

### 1.2—SMS MANUAL AND SUPPORTING PROGRAMS

This Safety Management System (SMS) Manual has been developed to direct all personnel in the safe operations of Southeastern Aviation Sciences Institute (SASI), and this manual is the policy that governs the operation of this organization. SMS is a proactive, integrated approach to safety management and is part of an overall management process that SASI has adopted in order to ensure that the goals of this organization can be accomplished.

SMS embraces the principle that the identification and management of risk increases the likelihood of accomplishing the mission. Hazards can be identified and dealt with systematically through the Hazard Reporting Program that facilitates continuous improvement and professionalism. Auditing and monitoring processes ensure that aircraft and flight training operations are accomplished in such a way as to minimize the risks inherent in FAR Part 141 flight training.

This SMS Manual sets forth instructions and guidance to all SASI personnel regarding their responsibilities, authorities, and performance of duties as they pertain to SASI's Safety Management System.

### 1.3—SAFETY MANAGEMENT PLAN

Safety is the state in which the risk of harm to people or damage to property is reduced to, and maintained at or below, an acceptable level through a continuing process of hazard identification and risk management. Safety management holds the key to SASI's objectives and affects every process within the organization. Safety management includes all areas of safety, security, health, and environmental management.

The primary purpose of this manual is to develop a system at SASI for managing our flight training processes and ensure compliance with all guidelines published by FAA, ICAO, OSHA, UAA, and AABI. This SMS Manual identifies the organization's Safety Management Plan as the tool used to define how the SMS supports the SASI's flight training, aircraft maintenance, and Durant Eaker Field operations. University management is committed to the SMS; and, has established leadership for the program and will continue to demonstrate, through everyday actions, the commitment to safety and its priority in the achievements of the organization.

The processes in place in the Safety Management Plan include the active involvement of **all** Southeastern Aviation faculty, maintenance employees, staff, flight instructors, and students, who, through planning and review, will drive efforts for continuing improvement in safety and safety performance. The key focus is the safe operations of airworthy aircraft and a safe training environment.

Safety audits are essential components of the Safety Management Plan. Audits review systems, identify safety issues, prioritize safety issues, and involve all university personnel and students to enhance the safety of operations.

#### **1.4—SCOPE OF SAFETY MANAGEMENT**

SASI has developed an integrated Safety Management System for its entire organization. The SMS provides the highest reasonable level of safety by identifying and minimizing risks, which could contribute to accidents, incidents, or injury to persons. SASI provides both safety and quality management covering the complete scope and life cycle of all systems and operational processes, including:

- Flight Training Operations;
- Operational Control (Dispatch / Flight Following);
- Maintenance and Inspection; including:
  - Parts / materials
  - Technical data
  - Quality control
  - Records management
  - Contract maintenance
- Security;
- Aircraft ground handling and servicing;
- Training of all personnel.

#### **1.5—OVERVIEW OF SMS FRAMEWORK**

As described in FAA AC 120-92 and the ICAO Safety Management Manual (SMM) (Document 9859), SMS processes are organized into four basic components of safety management: safety policy, safety risk management, safety assurance, and safety promotion.

**Safety policy** must be described with who in the organization has responsibility, authority, and accountability for the goals of the organization. The policies, procedures, and structure of the organization must be described along with the fundamental value of safety within the organization.

**Safety Risk Management** is the process of hazard identification and management of risk to acceptable levels. This systematic process describes how to identify hazards, how to assess the risks, and then the procedures to control the risks.

**Safety Assurance** processes ensure that once risk controls are in place, the organization continues to review the safety initiatives to make sure that risks are maintained within acceptable levels as defined by the organizations safety policies and goals.

**Safety Promotion** is the ongoing process to promote safety within the organization. Senior leadership must continuously promote the growth of a positive safety culture within the organization. Key components are training personnel and clear communication of lessons learned throughout the organization.

## 2.0—SAFETY POLICY

### 2.1—OVERVIEW

All faculty, staff, maintenance personnel, flight instructors, and students are accountable for Southeastern Aviation Sciences safety performance. In addition, all are committed to operating in safe, healthy, secure working conditions and promoting safety attitudes with the objective of having an accident-free workplace.

Southeastern's Director of Aviation Sciences Institute is committed to making safety excellence a part of all activities in the Aviation Department as described in the safety policy statement below.

### 2.2—SAFETY POLICY

Safety is one of our core university aviation functions. We are committed to developing, implementing, maintaining, and constantly improving strategies and processes to ensure that all our aviation activities take place under a balanced allocation of university resources. We shall strive to achieve the highest level of safety performance and exceed FAA standards, while training our university aviation students.

All levels of faculty, employees, and aviation students are accountable for the highest level of safety performance, starting with the Director of SASI.

Our commitment is to:

- Support the management of safety through the provision of all appropriate resources, that will result in an organizational culture that fosters safe practices, encourages effective safety reporting and communication, and actively manages safety with the same attention to results as the attention to the results of the other management systems of the organization;
- Clearly define accountabilities and responsibilities for all faculty, flight instructors, aviation students, and employees, to maximize the organization's safety performance;
- Establish and operate hazard identification and risk management processes, including a hazard reporting system, in order to eliminate or mitigate the safety risks of the consequences of hazards resulting from our operations or activities to a point which is as low as reasonably practicable (ALARP);
- Ensure that no action will be taken against any student, flight instructor, or employee who discloses a safety concern through the hazard reporting system, unless such disclosure indicates, beyond any reasonable doubt, an illegal act, gross negligence, or a deliberate or willful disregard of regulations or procedures;
- Comply with and, wherever possible, exceed, regulatory requirements and standards;
- Ensure that all employees and staff are provided with adequate and appropriate aviation safety information and training, are competent in safety matters, and are allocated only tasks commensurate with their skills;
- Establish and measure our safety performance against realistic safety performance indicators and safety performance targets;
- Continually improve our safety performance through management processes that ensure relevant safety action is taken and is effective.

Signed: George Jacox

Manager of Flight Operations, Southeastern Aviation Sciences Institute

### 2.3—SOUTHEASTERN AVIATION SAFETY PERSONNEL

***The Department Chair of SASI Flight—Professional Pilot is ultimately responsible for the following safety accountabilities:***

- Provide the necessary resources to implement and maintain the SMS.
- Conduct of all operations in the safest manner practicable
- Development of long-term safety objectives, including the establishment of safety policies and practices.

- Implementation of management systems that will establish and maintain safe work practices.
- Identification of a Safety Manager to provide oversight of policies and procedures.

***The Safety Manager is responsible for the following:***

- Maintaining and reporting all safety related data, including the minutes of safety meetings.
- Providing information on hazard and risk analysis.
- Defining and establishing a procedure for risk management.
- Conducting incident and accident investigations.
- Preparing and presenting audit reports and remedial actions.

***The Manager of Flight Operations is responsible for the following safety accountabilities:***

- Ensuring all flight operations personnel understand and comply with applicable regulatory requirements, standards, and the organization's safety policies and procedures.
- Identification and development of resources to achieve safe flight operations.
- Observing and controlling safety systems by monitoring and supervising flight instructors and pilot students.
- Measuring performance compliance of flight instructors and pilot students with SASI's goals, objectives, and regulatory requirements.
- Reviewing standards and the practices of SASI personnel as they affect flight safety.

***The Manager of Maintenance is responsible for:***

- Ensuring all maintenance personnel understand applicable regulatory requirements, standards, and SASI safety policies and procedures.
- Identification and development of resources to achieve safe maintenance operations.
- Observing and controlling safety systems by monitoring and supervising maintenance personnel.
- Measuring maintenance personnel performance compliance with SASI's goals, objectives, and regulatory requirements.
- Reviewing standards and the practices of maintenance personnel as they affect flight safety.

## **2.4—COMPLIANCE WITH STANDARDS AND LEGAL REQUIREMENTS**

All personnel have the duty to comply with approved standards including: a) SASI policy and procedures, b) aircraft manufacturer's operating procedures and limitations, and c) government regulations. Research shows that once you start deviating from the rules, you are almost twice as likely to commit an error with serious consequences. Breaking the rules usually does not result in an accident; however, it always results in greater risk for the operation, and the organization supports the principle of, "NEVER take unnecessary risks."

Behavior of intentional non-compliance with standards is a function of consequences. SASI management is committed to identifying deviations from standards and taking immediate corrective action. Corrective action can include counseling, training, discipline, grounding, or removal. Corrective action must be consistent and fair.

SASI management makes a clear distinction between honest mistakes and intentional non-compliance with standards. Honest mistakes occur, and they are addressed through counseling and training.

Research has shown that most accidents involve some form of flawed decision-making. This most often involves non-compliance with known standards. Non-compliance rarely results in an accident; however, it always results in greater risk for the operation. SASI policy agrees with the following conclusions:

- Compliance with known procedures produces known outcomes.
- Compliance with standards helps guarantee repeatable results.
- Bad rules produce bad results.
- Complacency affects the safe operation of the aircraft and cannot be tolerated.



- Standards are mechanisms for change.
- The hardest thing to do and the right thing to do are often the same thing.

This organization is committed to the principle that people are rewarded for normal, positive performance of their duties that comply with organization standards. Personnel will not be rewarded for accomplishing the mission by breaking the rules. Reinforced bad behavior breeds continued bad behavior. This is unacceptable.

## **2.5—EMERGENCY PREPAREDNESS AND RESPONSE**

The SASI Safety Committee identifies the potential for accidents and incidents through proactive analysis programs. The Safety Committee will respond to accidents and incidents at all times and is responsible for SASI emergency response and planning.

The Emergency Response Plan Manual (ERPM) will govern most actions to be taken in the event of an aircraft accident, incident, or natural disaster. SASI's unique location and mission requires additional plans beyond the SOSU Safety Manual.

The SOSU Safety Manual will govern most of the SASI facilities and natural disasters. SASI will also plan and respond integrating the City of Durant's Emergency Management Plan for the Durant Airport.

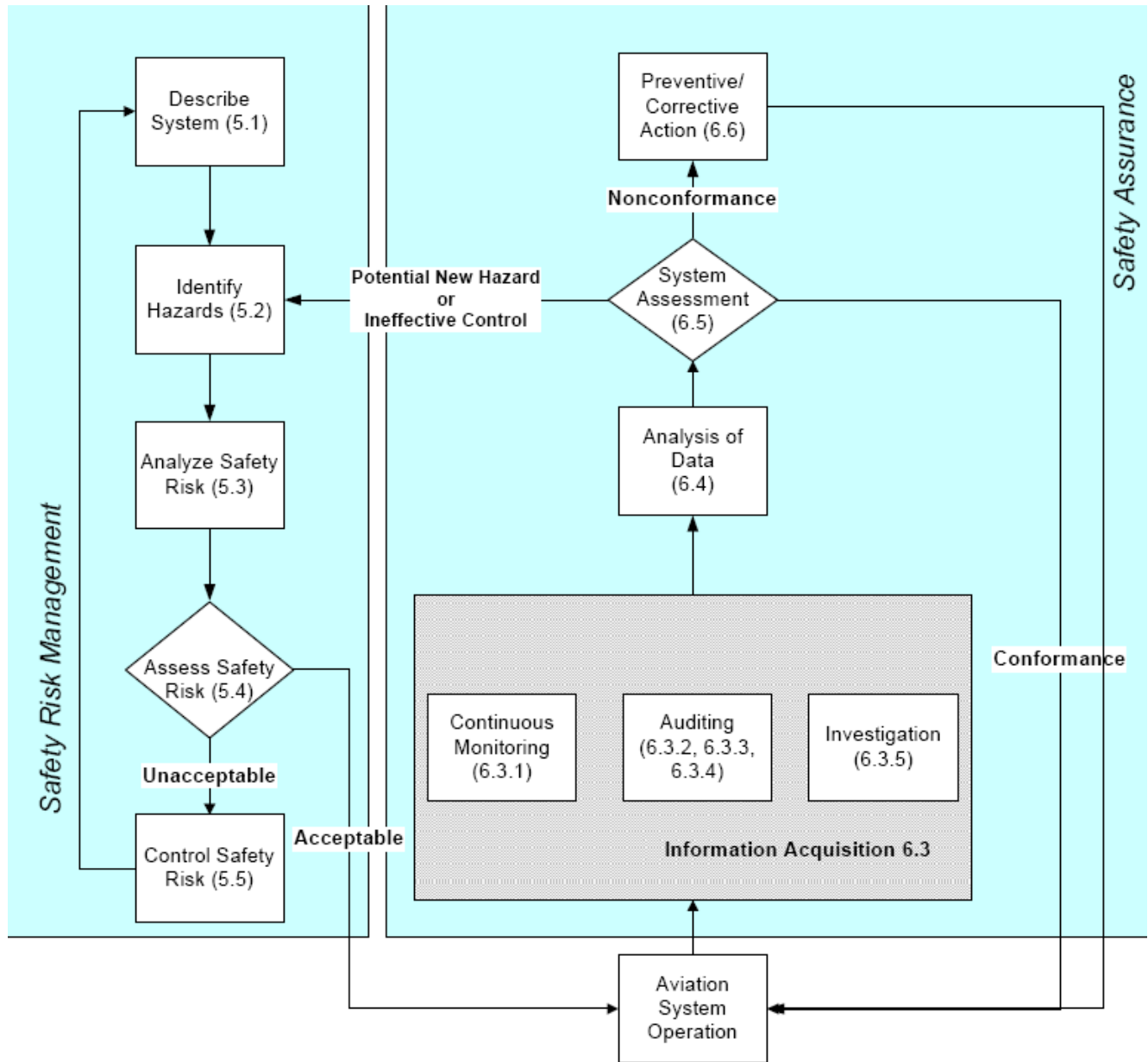
The Safety Manager is responsible for assuring that all personnel are trained to handle SASI emergencies based on their role in the organization. Emergency drills are conducted at least annually to ensure employees are competent. Emergency contact numbers are kept current in the ERPM and posted near all university telephones.

## **2.6—DOCUMENTATION AND RECORDS**

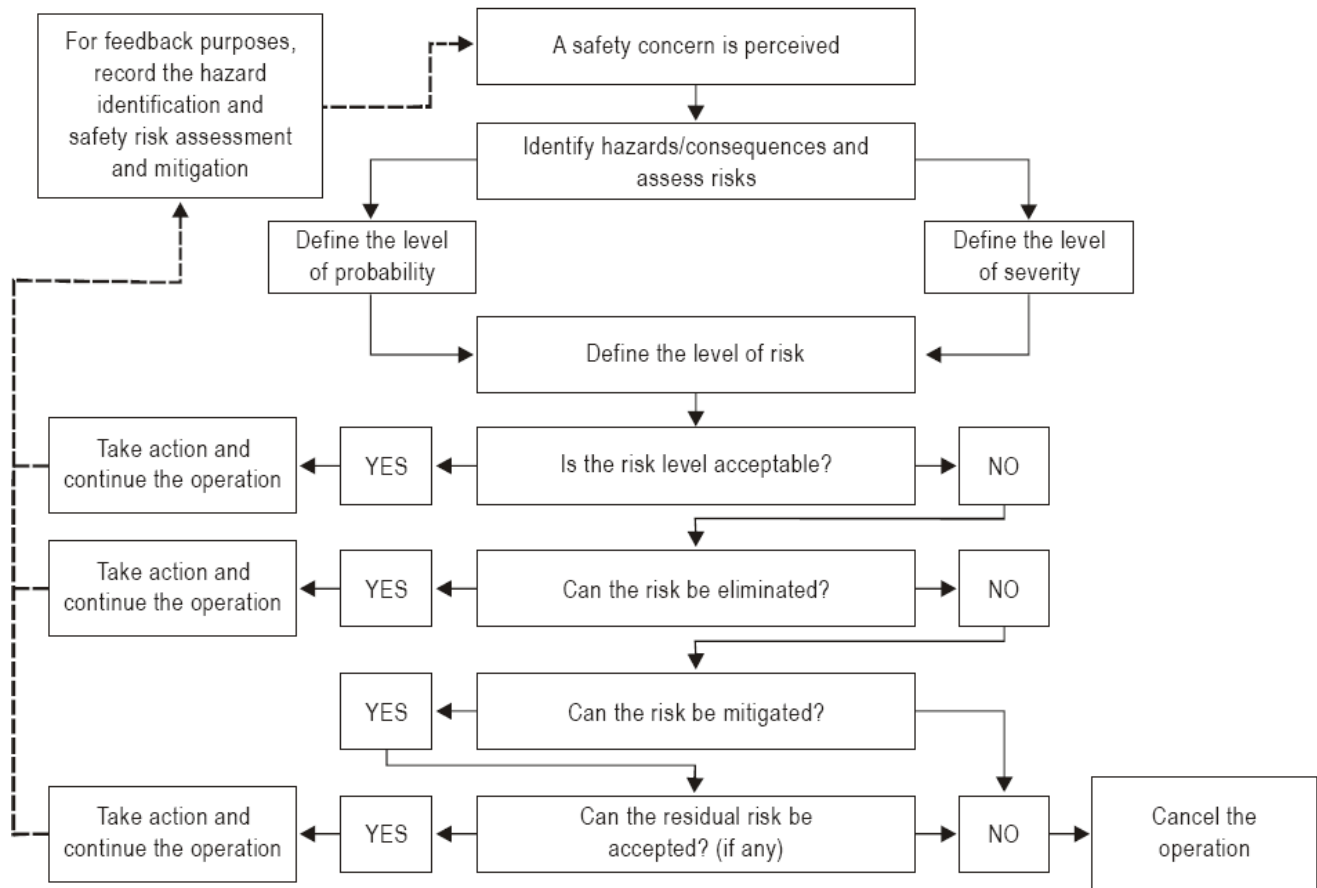
All safety documents are controlled by the Safety Manager and SASI Safety Committee. This includes the SMS documents, hazard and safety reports, and training records. Change control procedures are incorporated into each of these documents.

The Safety Manager is responsible for maintaining and reporting safety related data, including the minutes of safety meetings, information on hazard and risk analysis, risk management, remedial action, incident and accident investigations, and audit reports.

### 3.0—SAFETY RISK MANAGEMENT



**Figure 1**  
**Safety Risk Management and Safety Assurance Processes**  
 Source: FAA AC 120-92



**Figure 2**  
**Safety Risk Management Process**  
 Source: ICAO SMM

**3.1—HAZARD IDENTIFICATION AND ANALYSIS**

The systematic identification and control of all major hazards is the fundamental process in this SMS. The success of the organization depends on the effectiveness managing hazards and risk. Hazards are primarily identified through employee/student reporting, safety meetings, audits, and inspections.

When a major change in operations, equipment, or pilot certification is anticipated, the management of change process includes hazard identification and risk management processes.

Risk management is the identification and control of risk. See Figure 2 as it depicts the process. It is the responsibility of every member of SASI. The first goal of risk management is to avoid the hazard. SASI has established sufficient independent and effective barriers, controls and recovery measures to manage the risk posed by hazards to a level as low as practicable. These barriers, controls, and recovery measures include equipment, work processes, standard operating procedures, training, and other similar means to prevent the hazard development and limit their consequences should they occur.

SASI ensures that all individuals responsible for safety critical barriers, controls, and recovery measures are aware of their responsibilities and competent to act accordingly. The organization establishes who is doing what to manage key risks and ensures that these people, and their actions, are up to the task.

The Director of SASI is responsible for accepting or denying operations and manages risk through the Safety Committee using the Risk Assessment Matrix (see Tables 1 thru 4): The matrix is a graphic portrayal of risk as the product of probability on one axis (exposure, frequency, or likelihood) and Severity (potential consequence or loss from the outcome) on the other axis.

The Risk Assessment Matrix shows an assigned value and has a broad application for qualitative risk determination, as well as graphically presenting risk criteria. Risk assessment is entered into the Hazard/Incident Report and is maintained by the safety manager. These risk assessments make up the list of hazards for the organization.

<b>TABLE #1 – SEVERITY Scale Definitions (WHAT could happen) (source: ATC Advantage.com)</b>					
<b>CONSEQUENCE</b>	<b>S5 = CATASTROPHIC</b>	<b>S4 = CRITICAL</b>	<b>S3 = CONCERNING</b>	<b>S2 = MINOR</b>	<b>S1 = NEGLIGIBLE</b>
<b>ACCIDENT</b>	Irreparable loss of aircraft or other key equipment or facility	Significant damage - Multiple weeks out of service to repair	Moderate damage – multiple days out of service to repair	Minor damage – repaired and back in service within 24 hours	Damage is within limits or requires less than two hours to repair and return to service
<b>INJURY</b>	Death or total disability of an employee or passenger	Partial disability greater than 3 months of an employee or passenger	Lost workday injury over 3 days for an employee or comparable to passenger	OSHA defined injury of up to 3 LWDs for an employee or similar passenger injury	Any non-OSHA injury (no treatment needed to employee or passenger)
<b>OPERATIONAL</b>	Operating an aircraft in an unairworthy and/or unsafe condition	Operating an aircraft in an unairworthy but not unsafe condition	Operating an aircraft in an uncertain, but ultimately safe, condition	Stopping aircraft from operating after mistakenly releasing to service	Affecting aircraft reliability, but not affecting airworthiness or safety of operation
<b>SYSTEMS</b>	Complete loss or breakdown of entire system or sub-systems	Significant breakdown of a system or sub-system	Partial breakdown of system or sub-system	System deficiencies having some effect on time achievement of objectives	Little or no effect on system or sub-system
<b>FINANCIAL</b>	Fine, citation or other loss more than \$1,000,000	Fine, citation or other loss more than \$200,000 but less than \$1,000,000	Fine, citation or other loss more than \$50,000 but less than \$200,000	Fine, citation or other loss more than \$5,000 but less than \$50,000	Fine, citation or other loss less than \$5,000

<b>TABLE #2– PROBABILITY Scale Definitions (WHEN it could happen) (source: ATC Advantage.com)</b>	
<b>P5</b>	<b>FREQUENT</b> = Likely to occur within 30 days. Will be continually experienced unless action is taken
<b>P4</b>	<b>OCCASIONAL</b> = Estimated to occur within 6 months. Will occur often, if unchanged
<b>P3</b>	<b>SELDOM</b> = Estimated to occur within one year. Infrequent occurrence
<b>P2</b>	<b>REMOTE</b> = Estimated it might occur within 5 years. Possible, but remote chance of occurrence.
<b>P1</b>	<b>IMPROBABLE</b> = Unlikely to occur. Any estimate of occurrence is over 5 years.

TABLE #3 – Risk Determination Matrix (source: ATC Advantage.com)					
VALUES:	S5	S4	S3	S2	S1
P5	25	23	21	18	7
P4	24	22	19	15	5
P3	20	17	16	13	4
P2	14	12	10	8	2
P1	11	9	6	3	1

TABLE #4 – Assessed Safety Risk Condition (source: ATC Advantage.com)	
<b>RED</b> 23-25	<b>HIGH RISK – IMMINENT DANGER.</b> Unacceptable. Requires the highest priority for investigation, resources, and quick corrective action to reduce the risk of the hazard in question to a lower, acceptable level.
<b>ORANGE</b> 18-22	<b>SERIOUS RISK</b> – Unacceptable. Requires investigation, resources, and timely corrective action to reduce the risk level. There apparently are no acceptable controls, policies, or procedures currently in place to adequately manage or mitigate this risk.
<b>YELLOW</b> 12-17	<b>MODERATE RISK</b> – May be acceptable with review by appropriate authority. Requires tracking and probable action. There may be acceptable policies and procedures in place, but improvement is needed.
<b>BLUE</b> 6-11	<b>MINOR RISK</b> – May be acceptable with review by appropriate authority. Requires tracking and possible action. There are acceptable policies and procedures in place, but improvement is possible.
<b>GREEN</b> 1-5	<b>LOW RISK</b> – May be acceptable without further action.

### 3.2—RISK ASSESSMENT AND CONTROL

#### 3.2.1—Hazard and Incident Reporting System

***Policy***

Effective implementation of Southeastern Aviation Policy is contingent upon a working system to prevent accidents. Essential to this objective is a program to identify and eliminate or mitigate workplace hazards and to prevent the occurrence of unsafe incidents. Under normal circumstances, hazards should be reported and corrected at the lowest operational level utilizing established lines of authority and responsibility. For other situations, the Hazard and Incident Reporting System provides a means for affected personnel to report recognized safety hazards or reportable incidents to faculty management for appropriate action.

***Non-Reprisal Policy***

The following statement provides guidance for all employees and students regarding the use of, participation in, and party to SASI’s Hazard and Incident Reporting System. “The Southeastern Aviation Sciences Institute is committed to the safest operation possible. It is imperative we promote uninhibited reporting of all hazards, occurrences, and incidents that in any way affect the safety of our operations, employees, students, facilities, or visitors.”

It is therefore, the policy of SASI to recognize the efforts of individuals who identify and communicate unsafe acts and conditions for the purpose of promoting safety. It is also the responsibility of each employee or student to communicate any information that could possibly affect the integrity of flight and ground safety. All communications made by employees or students following the SMS reporting process shall be made with the assurance that no retaliation/reprisal shall occur to the employee or student for submitting any information via the Hazard and Incident Reporting System.

The identity of employees and students who provide information through this system shall be protected to the extent permissible by law while disseminating critical flight and ground safety information. This non-reprisal policy shall not apply to information concerning accidents and criminal offenses.

### ***System Description***

Any individual involved directly or indirectly in the flight and maintenance activities of SASI (i.e., employees, part-time/contract personnel, and aviation students) must report any observed hazard. If a hazard is recognized and unable to be resolved via normal procedures, the observer shall complete a Hazard/Incident Report and submit it to the Safety Manager.

The following provides a guideline for the purpose of determining whether a situation warrants the submission of a Hazard/Incident Report. This description is not all-inclusive and the originator should exercise sound judgment and discretion when determining if a report should be submitted. A Hazard and Incident Report shall be submitted when any situation, practice, procedure, or process is observed which is either: a) a recognized safety concern, b) considered unusual from an operational or procedural standpoint, or c) considered deficient from a safety standpoint. Any safety concern that would be of interest to other aviation students, instructors, or faculty should be reported. A report shall also be submitted in the event of any incident detailed in the Incident Reporting Criteria found in this document.

Incident reports should be submitted using the Hazard and Incident Report form. The submitter's identification on the report is optional but is encouraged in the event that further information is required for elimination of the hazard. Reports should be concise and should accurately describe the hazard. When applicable, reports should include the submitter's recommendation(s) for corrective action. In circumstances where the perceived hazard possesses the immediate potential for injury/illness to persons or damage/loss of property, the Safety Manager, Chief Pilot, or Manager of Flight Operations shall be notified immediately by the most expeditious means possible to determine the appropriate action to prevent such injury, illness, damage, or property loss.

### ***Hazard and Incident Report Processing***

Upon receipt of a Hazard/Incident Report, the Safety Manager will conduct an investigation to determine the validity of the report as well as to gain additional information concerning the report's subject matter. Any significant hazardous situations or equipment shall be either placarded or removed from service until the hazardous situation is corrected. The submitter, if identified, will be advised of the result of the investigation. If a Hazard/Incident Report identifies a problem that is outside the scope or authority of the Safety Program, the originator will be offered assistance in routing the information to the appropriate person responsible.

Upon validation of a Hazard/Incident Report, the Safety Manager shall identify and notify the individual(s) assigned responsibility for the affected area of operation. The contents of the Hazard/Incident Report and the investigation results will be provided along with recommendations for corrective/preventive action to the Safety Committee. Appropriate action and a target date for elimination or reduction of the hazardous situation will then be determined. Final corrective action shall be documented on the Hazard/Incident Report form and the completed form returned to the Safety Manager. The Hazard/Incident Report originator will then be notified of the final disposition of the matter.

### **3.2.2—Occurrences and Hazards**

An occurrence is defined as any unplanned safety related event. This event would cause a concern for the safety of students, faculty, flight instructors, employees, equipment, property, or the environment.

A hazard is defined as something that has the potential to cause harm to people and/or the loss of or damage to equipment, property or the environment.

It is the responsibility of the Manager Flight Operations to ensure all relevant comments and agreed actions from other managers are recorded in the Hazard/Incident report. Reports are closed when all actions have been taken. Occurrences shall be reviewed in the quarterly safety meeting.

Personnel who report are treated fairly and justly, without punitive action from Southeastern Faculty except in the case of known reckless disregard for regulations and standards, or repeated substandard performance. The “Just Culture” process shown on the next page is used when deciding if disciplinary action is appropriate.

Significant occurrences are investigated by the safety manager or his designee and shall be reviewed by the Chief Pilot and Flight Department Chair. The Safety Manager reviews the database for previous occurrences in order to identify trends.

## 4.0—SAFETY ASSURANCE

### 4.1—OVERVIEW

Safety assurance provides all stakeholders an indication of the performance of the safety system in place. Assurance is “something that gives confidence.” After the controls for risk are made part of the safety system, safety assurance takes over to see that they work as intended.

SASI will conduct safety audits and inspections as part of the safety assurance process. The safety manager directs annual audits of the SMS. Findings and associated corrective actions shall be recorded in the audit. Records of audits and inspections, and the resolution of actions needed, are maintained by the safety manager. Issues identified in the audits and inspections are included in the agenda of the Safety Meeting. Positive findings are also recorded. Findings and recommended actions are communicated to all personnel in a timely manner.

### 4.2—AUDITS AND INSPECTIONS

The use of audit functions to verify compliance and standardization is an integral part of the quality assurance system. An initial audit will cover all activities within the SASI operations. Records of audit findings, including issues of compliance and non-compliance, corrective actions, and follow-up inspections will be kept and maintained by the Safety Manager. The results of audits and inspections will be communicated to all appropriate personnel in Southeastern’s Aviation Department.

SASI will perform regularly scheduled internal audits (annually) of its operational processes to determine the performance and effectiveness of risk controls. Planning of the evaluation program will take into account:

- safety criticality of the processes being evaluated, and
- the results of previous evaluations.

The Safety Committee will select the evaluators; and document the procedures used, which include the responsibilities and requirements for:

- planning evaluations,
- conducting evaluations,
- reporting results, and
- maintaining records.

SASI’s Manager of Quality Assurance will normally conduct the safety audits; however, auditors outside of Southeastern Aviation Operations may be selected. In this way, the quality assurance function remains neutral and is independent from the operational aspects of SASI.

#### 4.2.1—Audits Checklist

Audit checklists are used to identify all of the functions controlled by SASI’s policies and procedures manuals. A copy of the Southeastern Aviation Audit Checklist is found in Appendix 3. The audit checklists are based on standard FAA guidelines (SMS Assurance Guide) and the small size of the SASI organization. The quality audit of SASI’s safety management system will include an account of the following areas:

- Safety policy
- Safety standards
- Safety culture
- Structure of safety accountabilities
- Hazard identification
- Risk Management
- Safety assessment, and Safety monitoring

#### 4.2.2—Inspections: Internal Evaluation

Safety evaluation is fundamental to the safety management process. SASI will conduct internal evaluations of the SMS and operational processes at planned intervals to determine that the SMS conforms to its objectives and expectations. Every two years, SASI’s safety manager will



conduct an internal evaluation of the organization's existing operations, operational changes, and future safety management planning. The operational areas to be evaluated are:

- flight training operations
- operational control (dispatch / flight following)
- maintenance and Inspection; including:
  - Parts / materials
  - Technical data
  - Quality control
  - Records management
  - Contract maintenance
- security
- aircraft ground handling and servicing
- training of all personnel

SASI will:

- periodically measure performance objectives and design expectations of the Internal Evaluation Process
- ensure that procedures are followed for safety-related operations and activities; and
- periodically review supervisory and operational controls to ensure the effectiveness of the Internal Evaluation Process

Safety evaluation is fundamental to the safety management process. Every two years SASI's safety management policies and procedures require an internal evaluation of the organization's existing operations, operational changes, and future safety management planning.

#### **4.3—INVESTIGATIONS**

##### **4.3.1—Incidents and Accidents**

Safety related events, including accidents and incidents, will be investigated to collect information to help prevent similar events. An initial risk assessment assists in determining the extent of the full investigation. The investigation and analysis will include the following:

- determination of "what" and "why" the event happened, rather than, "who's" to blame;
- ensure that the FAA or the NTSB are appropriately notified;
- immediate causal and contributing factors;
- organizational factors that may contribute to the hazard or incident;
- the unsafe acts of the operators; and
- a report to the Safety Committee, which will implement recommendations.

#### **4.4—SAFETY PERFORMANCE MONITORING AND MEASUREMENT**

##### **4.4.1—Management of Change**

Hazards may be inadvertently introduced anytime the operation changes externally or internally. Examples of external change may be due to regulatory requirements, air traffic control, security requirements, or airport issues. Safety management requires a proactive analysis of the change using the Management of Change (MOC) process.

The systematic approach to managing and monitoring organizational change is part of the risk management process. The SASI Safety Committee will identify safety issues associated with change and utilize the following procedures for managing change:

- Identify new hazards and analyze the risk
- Identify the goals, objectives, and nature of the proposed change
- Identify operational procedures that must change
- Analyze changes in location, equipment, or operating conditions
- Insert the current changes to appropriate Southeastern Aviation manuals
- Communicate to all personnel an understanding of the changes

- Review, evaluate, and record potential safety hazards from the change or its implementation
- Obtain the Director's approval of the agreed change and implement the new procedure(s)

There are methods for managing the introduction of new technology. All personnel should be consulted when changes to the work environment, process, or practices could have health or safety implications. Changes to resource levels and competency of personnel are assessed as part of the change control procedure.

Change can only be successful if the appropriate personnel participate in the process. Management of change provides a structured framework for managing all aspects of the change.

#### **4.4.2—Continuous Improvement**

Safety risk management requires continual feedback to assure all stakeholders that the level of risk is indeed "as low as reasonably practical" and the Safety Management System performance is accomplishing the desired goals.

SASI's Safety Committee will conduct an annual internal audit of the SMS process to:

- Assess compliance with safety risk controls
- Measure the effectiveness of safety risk controls
- Assess overall system performance
- Identify all new hazards for the year

After analyzing the data, corrective actions, hazard/incident reports, and all safety related processes, the Safety Committee will publish the *lessons learned and best practices* to all employees, staff, faculty, and flight instructors. There is no way to measure and determine the organization's improvement of the safety management process without all personnel contributing and reporting below standard performance, as well as the best practices achieving outstanding performance.

## 5.0—SAFETY PROMOTION

### 5.1—INTRODUCTION

Safety promotion includes training, education, and safety communication. Training and education at SASI includes:

- documented process of training requirements;
- validation test to measure the effectiveness of training;
- general training to operate within Southeastern Aviation SMS; and
- recurrent safety training on system changes for the past year.

### 5.2—SAFETY TRAINING

System safety training is one of the key elements within a Safety Management System. To conduct a successful program, participants should be trained in appropriate concepts, duties, and responsibilities associated with each area of activity within SASI's operation.

Specific training in safety management duties is required for faculty, Safety Committee members, inspectors, maintenance personnel, aviation students, and flight instructors. The amount of safety training will be appropriate to the individual's responsibility and involvement in the SMS. Required training is also used as an *administrative control* to eliminate or mitigate risk to an acceptable level.

### 5.3—SAFETY COMMUNICATION

SMS objectives and procedures will be communicated to all aviation personnel and be visible in all aspects of SASI's operations. The Safety Manager and Safety Committee will work together to communicate the performance of the SMS programs to all aviation personnel. All personnel are encouraged to keep the flow of safety issues to the Safety Committee a top priority at all times. Therefore, SASI's safety communication will:

- ensure that all personnel are fully aware of SASI's SMS;
- communicate safety-critical information;
- convey the "nice-to-know" information;
- explain the actions and procedural changes to mitigate or eliminate risk;
- utilize the Blackboard website for all types of safety communication; and
- utilize a safety bulletin board in the dispatch area.

## 6.0—SAFETY MANAGEMENT PLAN

### 6.1—GENERAL

The Safety Committee will function as a clearinghouse for all functions of the Southeastern Aviation SMS. Safety policies, procedures, planning, and overall safety performance objectives will be evaluated continuously by the committee. The Safety Manager will then organize the committee’s directions into action.

### 6.2—SAFETY COMMITTEE

The Safety Committee, identified in figure 6, will select the evaluators; and document the procedures used,

Apr-20		ASI Safety Committee	
Member	Role	Department Representing	
Michael Gaffney	Chairman	Professional Pilot Program Chair	
Lloyd Sauls	Member	Director ASI	
Dr. Stan Alluisi	Member	Aviation Management Chair	
Kyle Thomas	Member	Flight department Chief Instructor	
Patty Hood	Member	Flight Dispatch and Line Service	
Jordan Blackburn	Member	Maintenance	
Elizabeth Resh	Member	Lead Flight Instructor	
Amanda Brown	Guest	Post-graduate Safety Intern	

*Figure 6: The ASI Safety Committee*

#### 6.2.1—General Overview

The purpose of the safety committee is to promote the safety, health, and welfare of Southeastern’s students, faculty, employees, staff, and airport community. In addition, the committee is to act proactively to:

- ensure the safe operation of equipment and facilities
- ensure compliance with the applicable regulations of local, state, and federal authorities
- enhance and protect university insurance programs

Policy responsibility and authority is mandated by the Director of Southeastern Aviation Sciences Institute. The Safety Committee shall be comprised of one Flight Instructor Safety Representative, one Line Crew Safety Representative, the Director of Maintenance, the Chief Pilot, the Safety Manager, the Manager of Administration, and the Manager of Flight Operations. Two senior aviation students may also serve on the committee. The chairperson of the committee will be the Safety Manager. The committee will be accountable and report all actions to the Director of SASI.

#### 6.2.2—Safety Committee Responsibilities

All Safety Committee members will be trained to function within the Safety Management System by the Safety Manager or the Assistant Safety Manager.

The Safety Committee shall meet on a quarterly basis and the chairperson will establish procedures and agendas each meeting and distribute meeting minutes and action items. All members are asked to bring safety concerns to the attention of the committee and provide feedback to department employees on the results of the meeting.

All members will encourage the prompt and accurate reporting of incidents and safety issues that have surfaced since the last meeting. All members will discuss and recommend solutions to safety issues and/or hazards in the workplace and flight operations. All recommendations will be documented and communicated to all Southeastern Aviation personnel.

Any matter deemed urgent by the Safety Manager or a Safety Committee member shall be brought to the attention of the Director of SASI immediately. The Committee is empowered by the

Director to protect Southeastern Aviation, its employees, its students, and university assets immediately.

### **6.2.2—Documentation and Records Management**

The Safety Committee is responsible for all Southeastern aviation safety documentation and records management. The Safety Manager shall record and delegate all actions and deliberations of the Committee (minutes, resolutions, etc.) to ensure its decisions are implemented, as needed. An Action Log will be maintained by the Safety Manger for review at all Safety Committee meetings. The log will document each hazard, incident, accident, and injury report; then, list the actions taken for each safety issue.

The Safety Manager will ensure decisions of the committee are within appropriate guidelines and will ensure follow through on committee action plans. Minutes will be distributed and maintained for all Safety Committee meetings. Records of each meeting shall be maintained for a period of 2 calendar years from the date the record was created. The Safety Manger will publish an annual report of all items brought before the Committee and those with action taken.

## **6.3—SOUTHEASTERN AVIATION REPORTING SYSTEM**

### **6.3.1—Non-Punitive Reporting Policy**

It is recognized that humans will make errors and systems must be developed that are error tolerant and behaviors changed to lessen the chance of errors occurring. It is not SASI's goal or policy to seek out the guilty party in order to administer retribution for the error. The goal is not to punish, but to ensure it does not happen again. SASI will strive to develop a non-punitive disciplinary policy as part of its safety management system. Employees and students are more likely to report events and cooperate in an investigation when some level of immunity from disciplinary action is offered. When considering the application of our non-punitive disciplinary policy, SASI will consider whether the occurrence involved willful intent of the individual.

### **6.3.2—Reporting Responsibilities**

All faculty, employees, and students have a responsibility to report what they consider a hazard or unsafe situation, as well as accidents and incidents. Employee and student input are essential for the success of the reporting system. A safety reporting system is worthless if no one uses it.

## **6.4—HAZARD AND INCIDENT REPORTING CRITERIA**

### **6.4.1—Hazard Reporting Criteria**

#### ***Hazard Definitions***

- Hazard (ICAO): "Condition or an object with the potential to cause injuries to personnel, damage to equipment or structures, loss of material, or reduction of ability to perform a prescribed function." (ICAO, 2009)
- Hazard (FAA): "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 prerequisite to an accident or incident." (FAA, 2009a)

The scope of hazards is quite large; but some examples, stated in the ICAO Safety Management Manual (ICAO, 2009), of factors and processes that that should be investigated are:

- design factors of equipment and tasks;
- procedures and operating practices, including documentation, checklists, and their validation in actual operations;
- communications, including means, terminology, and language;
- personnel factors, such as organizational policies, training, salary, and allocation of resources;
- work environment factors, such as ambient noise, vibration, temperature, lighting, and protective equipment and clothing;

- regulatory oversight factors, including the applicability and enforceability of regulation; the certification of equipment, personnel and procedures; the adequacy of oversight;
- defenses, including such factors as adequate detection and warning systems, the error tolerance of equipment, and the failure rates of equipment; and
- human performance, pertaining to medical conditions and physical limitations.

#### **6.4.2—Mandatory Incident Reports**

##### ***Southeastern Reportable Incidents***

1. If evasive action was taken due to loss of aircraft separation and/or possible collision
2. Any instance of inadequate terrain clearance
3. Pilot's loss of situational awareness resulting in his/her loss of position for more than 30 minutes
4. Failure of navigation or communication systems
5. Electrical failure resulting in a precautionary landing
6. Any physical damage to the aircraft, propeller, university property, or people
7. Any unintentional exit from a paved surface while landing, taking off, or taxiing
8. Critically low fuel quantity or landing with less than the prescribed reserve fuel load
9. Any airframe icing encounter
10. Severe turbulence
11. Any evacuation of an aircraft for emergency purposes
12. Engine failure or partial power loss
13. Any ditching or controlled landing that is not on an airport runway
14. Any intentional or unintentional violation of SASI's Standard Operating Procedures
15. Any runway incursion
16. Landing on the wrong runway or at the wrong airport
17. Any departure or excursion from the runway
18. Weather related injury or damage
19. Significant fuel leak
20. Takeoff with a significant weight and balance error
21. Injury to any person while in or outside the aircraft
22. Lighting strike or bird strike
23. Damage to aircraft by ground equipment
24. Damage to non-university property
25. Fire, explosion, smoke, or toxic fumes in or on the aircraft

##### ***NTSB Reportable Incidents (immediate notification required)***

1. Flight control system malfunction or failure
2. Inability of any required flight crewmember to perform normal flight duties as a result of injury or illness
3. In-flight fire
4. Failure of structural components of a turbine engine excluding compressor and turbine blades and vanes
5. Damage to property, other than aircraft exceeding \$25,000 for repair
6. Aircraft collide in flight

#### **6.4.3—Reporting Aircraft Accidents and Injuries**

Aircraft accidents will be reported in accordance with Federal Aviation Regulations and the National Transportation Safety Board regulations (Title 49 CFR Part 830).

#### **6.4.4—Reporting Procedures for Hazards and Incidents**

Incidents are defined and described in this document under Hazard and Incident Reporting Criteria. The Hazard and Incident Report Form may be found in Appendix 1. The report may be submitted to the Safety Manager (paper copy or email attachment) or online with Blackboard login to

SE Aviation Safety Reports. If a name is included on the report, a reply to the submitter will follow via email within five working days.

**The Normal Process**

- After a hazard or incident has been identified to the Safety Manager or Safety Committee, an Action Log and tracking number are assigned.
- During the next quarterly Safety Committee Meeting, the safety issue is presented.
- The Safety Committee determines if the item warrants further consideration, then assigns the item to the appropriate person for analysis and possible action.
- The Safety Committee determines the status of the safety issue and updates the Action Log.

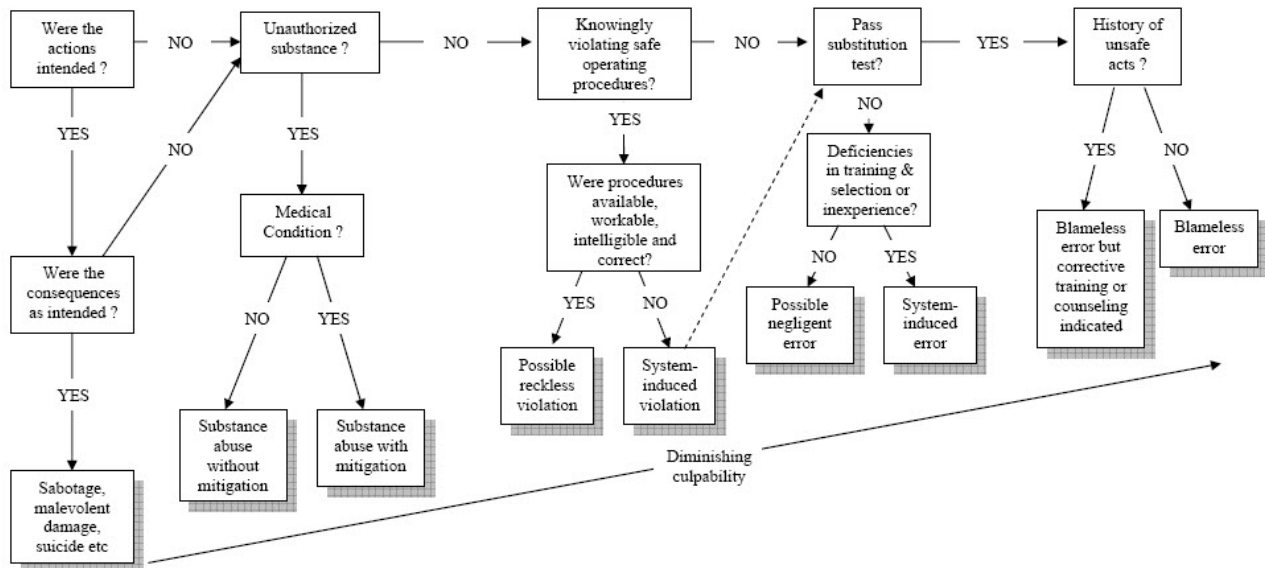
**The Immediate Process**

- If the Safety Manager, Director of SASI, or Manager of Flight Operations determines that immediate action is required, the appropriate personnel are directed to analyze and take action immediately.
- The Safety Manager adds the item to the Action Log and a detailed review takes place at the next Safety Committee meeting.

**Voluntary Disclosure Reporting**

SASI is committed to the promotion of a non-punitive environment where all SASI employees, faculty, staff, and students can voluntarily report safety issues, errors, mistakes, and even violations, without fear of disciplinary action from the university administration or SASI faculty. SASI will not initiate punishment against a student, a flight instructor, or other aviation personnel who discloses a safety related occurrence. This policy cannot apply to criminal or intentional infractions.

Voluntary self-reporting of errors, violations, and near midair collisions are encouraged as Southeastern Aviation strives to promote a safety culture in our flight operations; Dr. James Reason termed this corporate attitude as a “just culture.” Figure 1 below illustrates the accountability of people within our university aviation system. A **just culture** provides guidelines that differentiate between acceptable and unacceptable behavior.



**Figure 3:** Reason (1997) A decision tree for determining culpability of unsafe acts, p. 290

## 7.0—SMS ORGANIZATION

### 7.1—SASI SAFETY MANAGEMENT ORGANIZATION CHART

Director of Aviation Sciences Institute

Lloyd Sauls 580-745-3240

**Manager of Flight Operations SASI**

Michael Gaffney 580-745-3245

**Chief Pilot**

Kyle Thomas 580-745-3246

**Flight Instructors**

**Line Crew**

**Safety Manager**

John G. Van Bebber 580-745-3242

**Manager Maintenance**

Alan Davis 580-745- 3278

**Mechanic**

Mike Pruitt

Jordan Blackburn

**Manager Administration**

Dr. Stan Alluisi 580-745-3241

**Manager Quality Assurance and Environmental/Workplace Safety**

Dr. Charles Marshall 405-682-1611 Ext.7452



## **8.0—FLIGHT RISK ASSESSMENT**

all in progress

### **8.1—INTRODUCTION**

Please refer to the *Southeastern Aviation Standard Operating Procedures (SOPs)* for the primary flight risks to be encountered during training at SASI.

### **8.2—FLIGHT RISK ASSESSMENT POLICY**

### **8.3—RISK FACTORS**

### **8.4—USE OF FLIGHT RISK ASSESSMENT**

### **8.5—SCENARIOS THAT MAY PROMPT A FLIGHT RISK ASSESSMENT**

## DEFINITIONS AND TERMINOLOGY

**Accident** – an unplanned event or series of events that results in death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment.

**Analysis** – the process of identifying a question or issue to be addressed, modeling the issue, investigating model results, interpreting the results, and possibly making a recommendation. Analysis typically involves using scientific or mathematical methods for evaluation.

**Assessment** – the process of measuring or judging the value or level of something.

**Attributes** – System Attributes, or the inherent characteristics of a system, are present in any well-defined organization and apply to an effective SMS. While the six system attributes were first applied with Air Transportation Oversight System (ATOS) fielding, there are conceptual differences when applied to SMS, as discussed below:

### AUTHORITY & RESPONSIBILITY

**Authority** – who can direct, control, or change the process, as well as who can make key decisions such as risk acceptance. This attribute also includes the concept of empowerment.

**Controls** – controls are elements of the system, including hardware, software, special procedures, or procedural steps, and supervisory practices designed to keep processes on track to achieve their intended results. Organizational process controls are typically defined in terms of special procedures, supervisory and management practices, and processes. Many controls are inherent features of the SMS Framework. Practices such as continuous monitoring, internal audits, internal evaluations, and management reviews (all parts of the safety assurance component) are identified as controls within the design expectations. Additionally, other practices such as documentation, process reviews, and data tracking are identified as controls within specific elements and processes.

**Interfaces** – this aspect includes examining such things as lines of authority between departments, lines of communication between employees, consistency of procedures, and clearly delineating lines of responsibility between organizations, work units, and employees. Interfaces are the “Inputs” and “Outputs” of a process.

Interfaces in Safety Risk Management &

**Safety Assurance** – Safety Risk Management (SRM) and Safety Assurance (SA) are the key processes of the SMS. They are also highly interactive, especially in the input-output relationships between the activities in the processes. This is especially important where interfaces between processes involve interactions between different departments, contractors, etc. Assessments of these relationships should pay special attention to flow of authority, responsibility and communication, as well as procedures and documentation.

**Procedures** – ISO-9001-2000 defines “procedure” as “a specified way to carry out an activity or a process” – procedures translate the “what” in goals and objectives into “how” in practical activities (things people do). Procedures are simply documented activities to accomplish processes, e.g. a way to perform a process. The organization should specify their own procedures for accomplishing processes in the context of their unique operational environment, organizational structure, and management objectives.

**Process Measures** – are ways to provide feedback to responsible parties that required actions are taking place, required outputs are being produced, and expected outcomes are being achieved. A basic principle of safety assurance is that fundamental processes be measured so that management decisions can be data-driven. The general expectations for Component 1, Policy, specify that SMS outputs be measured and analyzed. These measurements and analysis are accomplished in Component 3, Safety Assurance. Outputs of each process should, therefore, be identified during Component 3 activities. For example, these outputs should be the subjects of continuous monitoring, internal audits, and internal evaluation.

**Responsibility** – who is accountable for management and overall quality of the process (planning, organizing, directing, controlling) and its ultimate accomplishment.

**Audit** – scheduled, formal reviews and verifications that evaluate whether an organization has complied with policy, standards, and/or contract requirements. An audit starts with the management and operations of the organization and then moves to the organization’s activities and products/services.

**Internal audit** – an audit conducted by, or on behalf of, the organization being audited, e.g., the flight-training department audits the flight training department.

**External audit** – an audit conducted by an entity outside of the organization being audited, e.g., the flight operations division audits the flight training department.

**Aviation system** – the functional operation or production system used by an organization to produce an aviation product or service (see System and Functional below).

**Complete** – nothing has been omitted and what is stated is essential and appropriate to the level of detail.

**Conformity** – fulfilling or complying with a requirement [ref. ISO 9001-2000]; this includes but is not limited to complying with Federal regulations. It also includes complying with company requirements, requirements of operator developed risk controls, or operator policies and procedures.

**Continuous monitoring** – uninterrupted (constant) watchfulness (checks, audits, etc.) over a system.

**Corrective action** – action to eliminate (remove) or mitigate (lessen) the cause or reduce the effects of a detected nonconformity or other undesirable (unwanted) situation.

**Correct** – accurate without ambiguity or error in its attributes.

**Documentation** – information or meaningful data and its supporting medium (e.g., paper, electronic, etc.). In this context, documentation is different from records because documentation is the written description of policies, processes, procedures, objectives, requirements, authorities, responsibilities, or work instructions; whereas Records are the evidence of results achieved or activities performed.

**Evaluation** – an independent review of company policies, procedures, and systems [ref. AC 120-59A]. If accomplished by the company, the evaluation should be done by a person or organization other than the one performing the function being evaluated. The evaluation process builds on the concepts of auditing and inspection. An evaluation is an anticipatory process designed to identify and correct potential problems before they happen. An evaluation is synonymous with the term “systems audit.”

**Functional** - The term “function” refers to “what” is expected to be incorporated into each process (e.g., human tasks, software, hardware, procedures, etc.) rather than “how” the function is accomplished by the system. This makes for a more performance based system and allows for a broad range of techniques to be used to accomplish the performance objectives. This, in turn, maximizes scalability while preserving standardization of results across the aviation organization communities.

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

**Incident** – a near-miss episode with minor consequences that could have resulted in greater loss. An incident is an unplanned event that could have resulted in an accident or did result in minor damage. An incident indicates that a hazard or hazardous condition exists, though it may not identify what that hazard or hazardous condition is.

**Lessons learned** – knowledge or understanding gained by experience, which may be positive, such as a successful test or mission, or negative, such as a mishap or failure. Lessons learned should be developed from information obtained from inside and outside of the organization and/or industry.

**Likelihood** – the estimated probability or frequency, in quantitative or qualitative terms, of an occurrence related to the hazard.

**Line management** – the management structure that operates (controls, supervises, etc.) the operational activities and processes of the aviation system.

**Nonconformity** – non-fulfillment of a requirement (ref. ISO 9001-2000). This could include but is not limited to, noncompliance with Federal regulations, company requirements, requirements of operator developed risk controls or operator-specified policies and procedures.

**Objective** – the desired state or performance target of a process. Usually it is the final state of a process and contains the results and outputs used to obtain the desired state or performance target.

**Operational life cycle** – time period from implementation of a product/service until it is no longer in use.

**Organization** – indicates both certificated and noncertificated aviation organizations, aviation service providers, air carriers, airlines, maintenance repair organizations, air taxi operators, corporate flight departments, repair stations, and collegiate aviation schools.

**Outputs** – the product or end result of an SMS process, which can be recorded, monitored, measured, and analyzed. Outputs are the minimum expectation for the product of each process area and the input for the next process area in succession.

Each of the outputs of a process should have a method of measurement specified by the organization. Measures need not be quantitative where this is not practical; however, some method of providing objective evidence of the attainment of the expected output is necessary.

**Oversight** – a function performed by a regulator (such as the FAA) that ensures that an aviation organization complies with and uses safety-related 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.

**Preventive action** – preemptive action to eliminate or mitigate the potential cause or reduce the future effects of an identified or anticipated nonconformity or other undesirable situation.

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

**Process** – a set of interrelated or interacting activities that transform inputs into outputs.

**Process measures** – refer to definition for Process Measures under the Attributes definition, above.

**Product/service** – anything that is offered or can be purchased that might satisfy a want or need in the air transportation system.

**Records** – evidence of results achieved or activities performed.

**Residual safety risk** – the safety risk that exists after all controls have been implemented or exhausted and verified. Only verified controls can be used for assessing residual safety risk.

**Risk** – the composite of predicted severity (how bad) and likelihood (how probable) of the potential effect of a hazard in its worst credible (reasonable or believable) system state. The terms risk and safety risk are interchangeable.

**Risk control** – steps taken to eliminate (remove) hazards or to mitigate (lessen) their effects by reducing the severity and/or likelihood of risk associated with those hazards.

**Safety assurance** – a formal management process within the SMS that systematically provides confidence that an organization's products/services meet or exceed safety requirements. A Safety Assurance flow diagram includes the Framework element/process numbers and other notes to help the reader visualize the Framework in terms of a process flow (with interfaces), and understand the component / element / process expectations.

**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 (as described in this document it includes safety risk management, safety policy, safety assurance, and safety promotion).

**Product/service provider Safety Management System (SMS-P)** – the SMS owned and operated by a product/service provider.

**Oversight Safety Management System (SMS-O)** – the SMS owned and operated by an oversight entity.

**Safety objective** – a goal or desirable outcome related to safety. Generally based on the organization's safety policy, and specified for relevant functions and levels in the organization. Safety objectives are typically measurable.

**Safety planning** – part of safety management focused on setting safety objectives and specifying needed operational processes and related resources to fulfill these objectives.

**Safety risk** – the composite of predicted severity (how bad) and likelihood (how probable) of the potential effect of a hazard in its worst credible (reasonable or believable) system state. The terms safety risk and risk are interchangeable.

**Safety risk control** – a characteristic of a system that reduces or mitigates (lessens) the potential undesirable effects of a hazard. Controls may include process design, equipment modification, work procedures, training or protective devices. Safety risk controls must be written in requirements language, measurable, and monitored to ensure effectiveness.

**Safety Risk Management (SRM)** – a formal process within the SMS that describes the system, identifies the hazards, assesses the risk, analyzes the risk, and controls the risk. The SRM process is embedded in the processes used to provide the product/ service; it is not a distinct, separate process.

**Safety promotion** – a combination of safety culture, training, and data sharing activities that support the implementation and operation of an SMS in an organization.

**Separate Aviation Maintenance Organizations**– are independent maintenance organizations such as, but not limited to, certificated repair stations, non-certificated repair facilities, and separate maintenance organizations. This does not include an air operator's maintenance organization and is not intended to duplicate 1.0 B) 1) a) 3) of an air operator's organization.

**Severity** – the degree of loss or harm resulting from a hazard.

**Substitute risk** – a risk unintentionally created as a consequence of safety risk control(s).

**System** – an integrated set of constituent 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.

**System Attributes** – refer to definition for Attributes

## REFERENCES

- Federal Aviation Administration [FAA], (2009a). *Introduction to Safety Management Systems for Air Operators (AC 120-92)*. Retrieved March 1, 2010 from [http://www.faa.gov/regulations\\_policies/advisory\\_circulars/index.cfm/go/document.information/documentID/22480](http://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentID/22480)
- Federal Aviation Administration [FAA], (2008) *Proposed Changes, SMS Framework for Aviation Providers (AC 102-92A)*. Retrieved March 1, 2010 from [http://www.faa.gov/about/initiatives/sms/specifics\\_by\\_aviation\\_industry\\_type/air\\_operators/media/sms\\_framework.pdf](http://www.faa.gov/about/initiatives/sms/specifics_by_aviation_industry_type/air_operators/media/sms_framework.pdf)
- Federal Aviation Administration [FAA], (2010a). *SMS Assurance Guide Revision 3*. Retrieved August 5, 2010 from [http://www.faa.gov/about/initiatives/sms/specifics\\_by\\_aviation\\_industry\\_type/air\\_operators/media/sms\\_assurance\\_guide.pdf](http://www.faa.gov/about/initiatives/sms/specifics_by_aviation_industry_type/air_operators/media/sms_assurance_guide.pdf)
- Federal Aviation Administration [FAA], (2010b). *SMS Framework Revision 3*. Retrieved August 5, 2010 from [http://www.faa.gov/about/initiatives/sms/specifics\\_by\\_aviation\\_industry\\_type/air\\_operators/media/sms\\_framework.pdf](http://www.faa.gov/about/initiatives/sms/specifics_by_aviation_industry_type/air_operators/media/sms_framework.pdf)
- GAIN Working Group E, Flight Safety Foundation (2004). *A Roadmap to a Just Culture: Enhancing the Safety Environment*. Retrieved May 1, 2010 from [http://flightsafety.org/files/just\\_culture.pdf](http://flightsafety.org/files/just_culture.pdf)
- International Civil Aviation Organization [ICAO], (2009). *Safety Management Manual (Doc 9859)*. Retrieved January 10, 2010 from <http://www.icao.int/anb/safetymanagement/Documents.html>
- International Helicopter Safety Team (IHST). (2009). *SMS Toolkit (2nd Ed)*. Retrieved May 1, 2010 from [http://ihst.rotor.com/Portals/54/2009\\_SMS\\_Toolkit\\_ed2\\_Final.pdf](http://ihst.rotor.com/Portals/54/2009_SMS_Toolkit_ed2_Final.pdf)
- National Business Aircraft Association [NBAA]. (n.d.). *Prototypical Business Aviation Safety Program*. Retrieved May 1, 2010 from <http://web.nbaa.org/admin/sms/manual/>
- Omni Air Group. (2009). *Safety Management System Manual*. Retrieved March 1, 2010 from [http://omniairgroup.com/pdf/SMS\\_Manual\\_Sample.pdf](http://omniairgroup.com/pdf/SMS_Manual_Sample.pdf)
- Reason, J. (1997). *Managing the Risks of Organizational Accidents*. Hants, England: Ashgate Publishing Ltd.
- Stolzer, A.J., Halford, C.D., and Goglia, J.J. (2009). *Safety Management Systems in Aviation*. Burlington, VT: Ashgate Publishing.
- Transport Canada [TC], (2010), *Safety Management Systems Development Guide for Small Operators/Organization, (AC 107-002)*. Retrieved on February 1, 2010 from <http://www.tc.gc.ca/civilaviation/managementservices/referencecentre/acs/100/107-002.htm>
- Transport Canada [TC]. (2010b). *Guidance on Safety Management Systems Development (AC 107-001)*. Retrieved February 1, 2010 from <http://www.tc.gc.ca/civilaviation/managementservices/referencecentre/acs/100/107-001-toc.htm>

## APPENDIX 1

### **Hazard and Incident Reporting Form** **Email to [Aviationsafety@se.edu](mailto:Aviationsafety@se.edu)**

The information supplied in this form will only be used to promote safety. Your name is optional. If you do provide your name, your identity will be removed before dissemination. An email reply will follow. Under no circumstances will your identity be disclosed to any university personnel, any other organization, agency, or person without your express permission.

Complete only **Part A** of the form, then submit it to the SASI Safety Manager—paper copy or email.

Name: \_\_\_\_\_ Email: \_\_\_\_\_

Position: \_\_\_\_\_ [Only Safety Manager has access to name/position]

Report Number: \_\_\_\_\_ Date Received: \_\_\_\_\_

#### **PART A:**

**Please fully describe the Hazard or Incident.**

<b>Incident Type:</b> Airborne _____ Bird strike _____ Ground _____ Line Service _____ Fueling _____ Hangar/Maintenance _____ Aircraft Tugging/Towing _____ Fire _____ Vehicle _____
---

Date of occurrence: _____ Time: _____ Injuries _____ Vehicle/Aircraft Type & registration: _____ Location: _____
---

If Aircraft related: Dual/Solo: _____ Day/Night _____ VFR/IFR _____ Taxi _____ Takeoff _____ Landing _____ Cross Country _____ Practice Area _____ Traffic Pattern _____ Weather: Ceilings: _____ ft Visibility _____ nm Wind Direction _____ Wind Speed _____ kts NASA (ASRS) Report Filed? _____ FAA Contacted _____ NTSB Contact _____
--

Description of incident or hazard *(Use other sheet if needed to fully describe the event- include pictures and diagrams):*

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Contributing Factors:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Were Procedures followed? (SOPs, FAR, POH):

\_\_\_\_\_

Suggested actions to be taken to prevent this in the future:

To be filled out and filed by Safety Manager:

**PART B:**  
**Actions & Recommendations of the Safety Manager or Safety Committee**

The report has been de-identified, entered into the safety database on Blackboard, and a response emailed if necessary.

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

*Probability* of the hazard recurring (SASI Risk Matrix)

<b>Frequent</b> 30 days <b>P5</b>	<b>Occasional</b> 6 months <b>P4</b>	<b>Seldom</b> 1 year <b>P3</b>	<b>Remote</b> 5 years <b>P2</b>	<b>Improbable</b> > 5 years <b>P1</b>
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*Worst-case consequences* (SASI Risk Matrix)

<b>Catastrophic</b> <b>S5</b>	<b>Critical</b> <b>S4</b>	<b>Concerning</b> <b>S3</b>	<b>Minor</b> <b>S2</b>	<b>Negligible</b> <b>S1</b>
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**Risk Matrix**

Likelihood		Very Likely	Likely	Unlikely	Highly Unlikely
Consequences	Fatality	High	High	High	Medium
	Major Injuries	High	High	Medium	Medium
	Minor Injuries	High	Medium	Medium	Low
	Negligible Injuries	Medium	Medium	Low	Low

**Risk Determination Matrix:** \_\_\_\_\_

**Assessed Safety Risk: High—Serious—Moderate—Minor—Low**

Suggested Action:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Actions taken regarding the incident or hazard:

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Responsibility for action (who):** \_\_\_\_\_

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

**Safety Committee review:**

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



**APPENDIX 2**  
**Accident and Injury Report Form**

(Revised 10/2/16)

To be completed by the Safety Manager or appropriate Safety Committee Representative for all accidents and injuries which have seriously endangered people, aircraft, vehicles, or equipment.

Name of person that completed this report: \_\_\_\_\_

Position: \_\_\_\_\_ Email: \_\_\_\_\_

Telephone number: \_\_\_\_\_

Date of Accident/Injury: \_\_\_\_\_

Time: \_\_\_\_\_ Location: \_\_\_\_\_

Date of Report \_\_\_\_\_

---

**Names of Witnesses**

**Witness 1**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

**Witness 2**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

**Witness 3**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_



## **APPENDIX 3**

### **Southeastern Aviation Audit Checklist**

In Progress