

Safety Management System

For

STAR Flight

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Table of Contents

Pages

4 thru 26	Safety Management System Manual
27	Appendix A - Safety Committee
28 thru 31	Appendix B - <i>STAR Flight</i> COMMITMENT TO SAFETY
32 thru 33	Appendix C - AVIATION POST-ACCIDENT/INCIDENT RESPONSE PLAN
34 thru 36	Laser Exposure Guide
37 thru 38	Fatigue Management and Sleep Deprivation
39	Safety Stand-Down Program

SAFETY MANAGEMENT SYSTEM MANUAL

This Safety Management System (SMS) Manual has been developed to direct all personnel in the safe operations of the organization. The manual defines the policy that governs the operation of the organization.

SMS is a pro-active, integrated approach to safety management. SMS is part of an overall management process that the organization has adopted in order to ensure that the goals of the organization can be accomplished. It 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 continuing improvement and professionalism. Auditing and monitoring processes ensures that aircraft are operated in such a way as to minimize the risks inherent in flight operations.

Safety Management Plan

Safety holds the key to this organization's future and affects everything we do.

This SMS Manual defines the organization's Safety Management Plan. The Safety Management Plan is the tool used to define how SMS supports the organization's Operations Plan. Organization management is committed to the SMS, and is required to give leadership to the program and 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 managers and supervisors, who, through planning and review, must continue to drive efforts for continuing improvement in safety and safety performance. The term "Safety Management" should be taken to mean safety, security, health, and environmental management. The key focus is the safe operations of airworthy aircraft.

Safety audits are essential components of the Safety Management Plan. They review systems, identify safety issues, prioritize safety issues, must involve all personnel, and enhance the safety of operations.

Mission Statement

STAR Flight will provide the highest quality critical care, air rescue, and support services to Travis County and Central Texas in a safe and rapid manner.

STAR Flight - Shock Trauma Air Rescue preserves life, improves health and supports public safety by conducting the following missions: medical missions (scene response, emergency inter-facility transfers, and specialty team flights), fire suppression, search and rescue, and law safety.

Safety Policy

Management is committed to providing safe, healthy, secure work conditions and attitudes with the objective of having an accident-free workplace. The organization's Program Manager/Director of Aviation Operations is committed to:

- Ongoing pursuit an accident free workplace, including no harm to people, no damage to equipment, the environment or property.
- A culture of open reporting of all safety hazards or incident in which management will not initiate disciplinary action against any personnel who, in good faith, discloses a hazard or safety occurrence due to unintentional conduct.
- Support for safety training and awareness programs.
- Conducting regular audits of safety policies, procedures and practices.
- Monitoring industry activity to ensure best safety practices are incorporated into the organization.
- Providing the necessary resources to support this policy.
- Requiring all employees to maintain a safe work environment through adherence to approved policies, procedures, and training, and shall familiarize themselves, and comply with safety policies and procedures.
- All levels of management are accountable for safety performance, starting with the PM/DAO. To be a good leader, you must be a good safety leader.
- Strengthening the organization by making safety excellence an integral part of all activities.

Program Manager's Safety Philosophy

As the Program Manager, I am responsible for the general welfare of the personnel and equipment entrusted to **STAR Flight** for the safe performance of our duties. A sound safety program is the key management tool that allows me to carry out my responsibilities. It is my personal responsibility to create, foster and maintain a culture of safety within the organization that seamlessly translates into an attitude, both on a personal and professional level, which is embraced and adopted by each individual.

Management is responsible for fostering a culture of safety within the organization. **STAR Flight** managers must not only be leaders, they must also be partners in safety to ensure that the standards and established procedures are periodically reviewed for appropriateness, disseminated, understood and followed by all. It means that where operational decisions must be made, they are made prudently, with safety an integral part of mission success.

Individuals involved in aviation operations play the critical role in the safe and successful outcome of all program activities. They are on the front lines of ground and flight operations and directly contribute to safety on a daily basis by keeping their procedural knowledge and skills honed to a professional edge. The result is a flight crewmember completely familiar with all regulations, policies and guidelines that is always fully prepared to make critical, informed and safe decisions both on the ground and in the air.

I understand that public safety helicopter operations have inherent risk. Training scenarios contribute directly to increased risk. However, the benefit gained by the acceptance of that training risk will aid in greatly mitigating the inherent risk involved during actual missions. We will manage this risk by applying appropriate risk mitigation methods until the overall risk is reduced to an acceptable level.

Safety cannot be legislated or mandated; aviation programs attain success by fostering and inspiring a safety attitude which is the foremost priority.

With a safety awareness attitude, professional flight crewmembers and appropriate equipment / training, the overall risk inherent to aviation operations can be greatly reduced and mishaps can be prevented. A persistent and unyielding commitment to safe, professional conduct by all personnel is paramount to achieving mishap prevention and successful risk management.

Casey Ping
Program Director

Safety Principles

Management embraces the following safety principles:

- Always operate in the safest manner practicable.
- A “Just Culture” philosophical process.
- Never take unnecessary risks.
- Safe does not mean risk free.
- Everyone is responsible for the identification and management of risk.
- Familiarity and prolonged exposure without a mishap leads to a loss of appreciation of risk.

Organization Structure and Safety Responsibilities

The organization’s structure is described in the operations manual.

The Program Manager/Director of Aviation Operations are responsible for the following safety accountabilities:

- All operations are conducted in the safest manner practicable.
- Ensuring the safety of all employees, customers, passengers and visitors.
- Development of long-term safety objectives, including establishment of safety policies and practices.
- Implementation of management systems that will establish and maintain safe work practices.
- Provide guidance to the Safety Officer/Safety Committee and regularly monitor the status of the program.
- The PM shall chair the safety committee and provide guidance to the members for the program.

The chief pilot is responsible for the following safety accountabilities:

- Ensuring all **crewmembers** understand applicable regulatory requirements, standards, and organization safety policies and procedures.
- Identification and development of resources to achieve safe flight operations.
- Observe and control safety systems by monitoring and supervision of aircrews.
- Measure aircrew performance compliance with organization goals, objectives and regulatory requirements.
- Review standards and the practices of organization personnel as they impact flight safety.

The Director of Maintenance is responsible for:

- Ensuring all flight maintenance personnel understand applicable regulatory requirements, standards, and organization safety policies and procedures.
- Identification and development of resources to achieve safe maintenance Operations.
- Observe and control safety systems by monitoring and supervision of maintenance personnel.
- Measure maintenance personnel performance compliance with organization goals, objectives and regulatory requirements.
- Review standards and the practices of maintenance personnel as they impact flight Safety.
- Maintain the MSDS file.

The Safety Officer reports directly to the Program Manager and is responsible for:

- Advise and assist the Program Manager in the development and sustainment of the Safety Management System.
- Assist the Program Manager in the collection of information relative to the presence of hazards in the aviation environment through the Safety Hazard/Occurrence Form reporting system.
- Act as facilitator of the safety committee.

- Act as liaison with City of Austin, Travis County and Austin-Travis County EMS Safety Departments.
- Conduct a minimum of four Safety Committee meetings each year and maintain a record of participants and subjects addressed.
- Maintain a record of ground, aircraft, and maintenance incidents.
- Investigate, analyze, and identify trends of occurrences and hazard detection reports. Recommend appropriate accident prevention action to the Program Manager.
- Provide an annual report to the Program Manager outlining the status of the safety management system.
- Assist the Management Team in identifying safety issues and developing policy statements and initiatives.
- Assist managers in obtaining safety related training and education materials.
- Attend industry and regional safety meetings.

Managers and Supervisors are responsible for the development of a proper safety culture in areas under their control. Additionally, managers and supervisors are responsible for the safety of all individuals who enter their department or work areas.

To fulfill this duty, each manager shall:

- Review **STAR Flight** safety rules and policy.
- Be familiar with all safety aspects of the portion of operations under their control.
- Ensure that each employee is trained in general safe work practices.
- Gather safety related training materials to support employee training.
- Ensure that each employee is trained in hazards specific to each employee's job assignment.
- Brief the Program Manager as soon as possible on all job-related accidents, incidents, injuries or near misses that occur in their area of responsibility.
- Submit verification of all safety and health training to the Program Manager so that appropriate employee training record entries can be made.

- Submit all Safety Hazard/Occurrence Forms to the Safety Committee with a report of corrective action taken or recommended.
- Take positive steps to avoid unsafe work conditions for employees under their supervision.
- Correct unsafe conditions promptly.
- Maintain good housekeeping in your area of responsibility.
- Encourage employees under their supervision to submit Safety Suggestion Forms when appropriate.

Compliance with Standards

All personnel have the duty to comply with approved standards. These include organization policy, procedures, aircraft manufacturer's operating procedures and limitations, and 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".

Intentional Non-compliance with Standards

Behavior is a function of consequences. 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 and will be consistent and fair.

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

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

Organization 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.

Rewarding People

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

Safety Promotion

Safety is promoted as a “core value.” Procedures, practices and allocation of resources and training must clearly demonstrate the organization’s commitment to safety. We must change the perception that the mission is what’s most important no matter the risk. The following methods are used to promote safety:

- Posting the Safety Policy in prominent locations around the base of operations.
- Starting meetings with a comment or review about safety issues.
- Having a safety bulletin board.
- Having an employee safety feedback process.

Document and Data Information Control

All safety documents are controlled through the technical library. This includes the SMS, operations, maintenance and training manuals. Change control procedures are incorporated into each of these documents.

The safety officer is responsible for maintaining 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.

Hazard Identification and Risk Management

Risk management is the identification and control of risk. It is the responsibility of every member of the organization. The first goal of risk management is to avoid the hazard. The organization should establish 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 can be equipment, work processes, standard operating procedures, training or other similar means to prevent the release of hazards and limit their consequences should they be released. The organization should ensure that all individuals responsible for safety critical barriers, controls, and recovery measures are aware of their responsibilities and competent to carry them out. The organization should establish who is doing what to manage key risks and ensure that these people and the things they should do are up to the task.

The systematic identification and control of all major hazards is foundational. The success of the organization depends on the effectiveness of the Hazard Management Program.

Hazards are identified through employee reporting, safety meetings, audits and inspections.

The organization Program Manager/DAO is responsible for accepting or denying operations, and manages risk through the Risk Assessment Matrix (RAM).

When a major change in operations, equipment or services is anticipated, the management of change process should include hazard identification and risk management processes.

The RAM is a graphic portrayal of risk as the product of probability on one axis (exposure, frequency or likelihood) and potential consequence on the other axis (loss generated from the outcome).

The Risk Assessment Matrix shows an assigned value, and has a broad application for qualitative risk determination as well as graphically presenting risk criteria.

The data from the risk assessment(s) is entered into the risk assessment form and is maintained by the **chief pilot**. These risk assessment forms make up the list of hazards for the organization.

		PROBABILITY				
		FREQUENT	PROBABLE	OCCASIONAL	REMOTE	IMPROBABLE
SEVERITY	I - CATASTROPHIC	1	2	4	8	12
	II – CRITICAL	3	5	6	10	15
	III - MARGINAL	7	9	11	14	17
	IV - NEGLIGIBLE	13	16	18	19	20

Risk Assessment Forms

RECORD OF ASSESSMENT			
Ref. No.			
Base: Section/Department:		Type of Harm:	
Work Activity:		Injury	
Team:		Damage to environment	
Assessor Name:			
Date of Assessment:		Signature:	
Employees at risk:		Review date:	
Others who may be at risk:			
IF ADDITIONAL CONTROL MEASURES ARE REQUIRED, CAN THEY BE IMPLEMENTED IMMEDIATELY			YES / NO
IF NO, SUMMARISE ACTION PLAN BELOW			
Action required:	Target Date	Action by:	Completed by (Name & Date)
Date for full implementation of control measures:			
Assessment accepted by: (relevant manager):			
Title:			
Date:			

Occurrence and Hazard Reporting

All occurrences and hazards identified by an employee shall be reported to the safety officer on the Occurrence and Hazard Report shown below:

STAR Flight Occurrence and Hazard Identification Report

Employee/Crewmember please complete items 1 through 12. Click on all "gray boxes" and either check what applies or type in narrative, date etc.....
The purpose is to assure that intervention prevents reoccurrence.

Occurrence Report Hazard Identification Report

Report Number: (assigned by safety officer)

1. Date: 2. Time: 3. Location:

4. Flight #: Call #:

5. Event or unsafe act(s) observed:

6. Injuries/Illnesses experienced:

7. Corrective action(s) taken:

8. Human Error Factor:

9. AMRM Factor: (If "YES", provide description below)

10. Weather Factor: (If "YES", provide description below)

11. Comments/recommendations:

12. Person submitting Report:

ADMINISTRATIVE FINDINGS

13. Mechanical Findings (DOM):

14. Mechanical Resolution:

15. Parts Cost:

16. Man Hour Cost:

17. Total Cost:

18. Administrative Findings (DAO or Chief Pilot):

19. Supervisor Submitting Information:

20. Occurrence: First Second Third N/A

21. Distribution: Employees Supervisors Safety Officer

Date Completed:

Occurrence – Definition

An occurrence is defined as: Any unplanned safety related event, including accidents and incidents that could impact the safety of guests, passengers, organization personnel, equipment, property or the environment.

Hazard – Definition

A hazard is defined as: Something that has the potential to cause harm to a persons, loss of or damage to equipment, property or the environment.

Occurrences

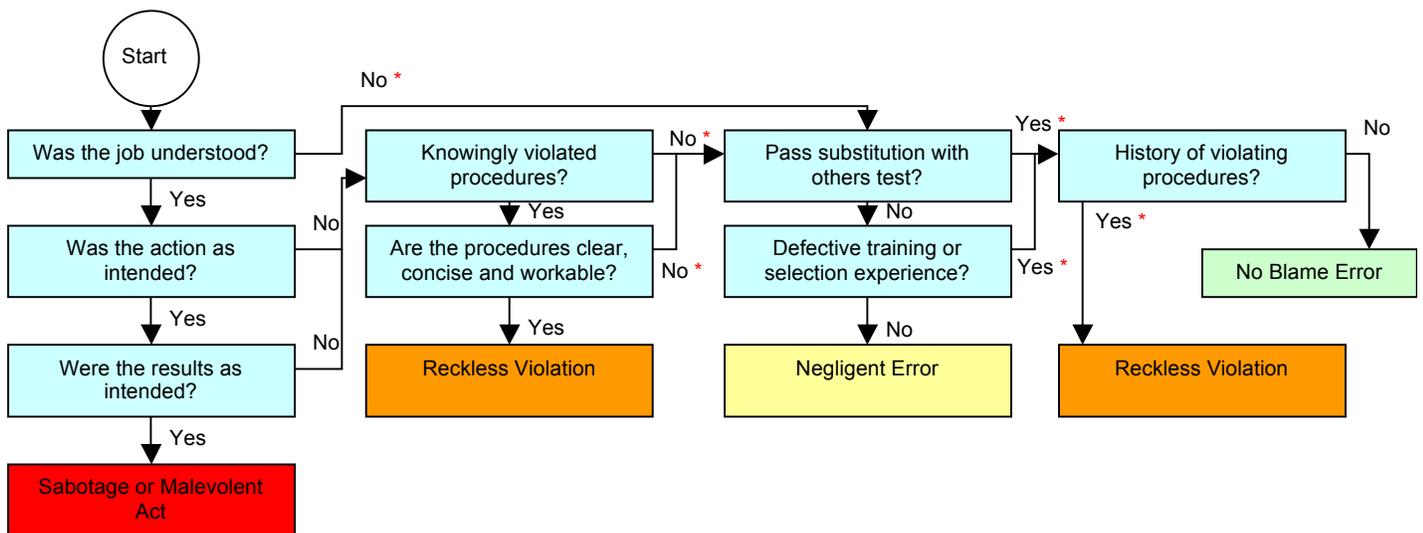
The chief pilot is responsible to ensure all relevant comments from other managers and agreed actions are recorded in the report. Reports are closed when all actions have been taken. Occurrences shall be reviewed in the monthly meeting.

Personnel may anonymously report hazards using the same report.

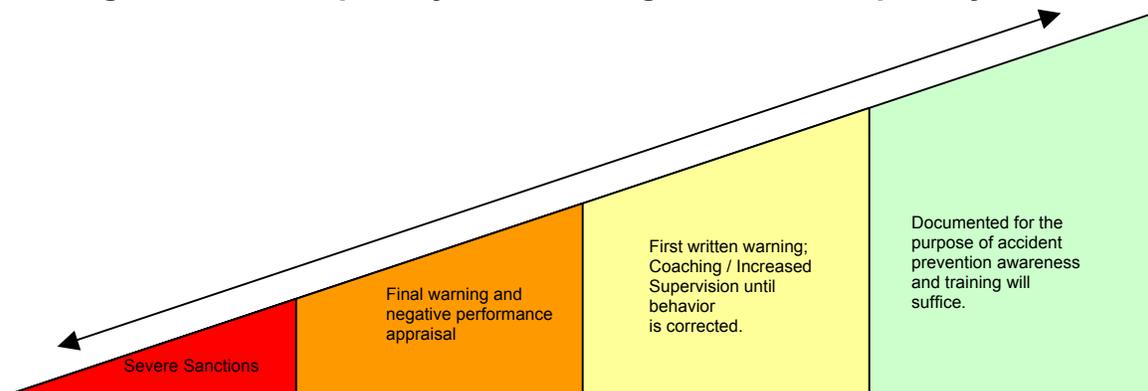
Personnel who report shall be treated fairly and justly, without punitive action from management except in the case of known reckless disregard for regulations and standards, or repeated substandard performance.

The “Just Culture” Process shown below is used when deciding if disciplinary action is appropriate. (For guidance in using this procedure see the IHST “SMS Toolkit” web page: www.ihst.org/SMStoolkit/).

Just Culture Process



Increasing Individual Culpability / Diminishing Individual Culpability



* Indicates a 'System' induced error. Manager/supervisor must evaluate what part of the system failed and what corrective and preventative action is required. Corrective and preventative action shall be documented for management review.

Occurrence Investigation and Analysis

Significant occurrences are investigated by the safety officer or his designee, and shall be reviewed by the PM/DAO.

The safety officer reviews the database for previous occurrences in order to identify trends.

For human error in maintenance operations, the MEDA checklist shall be used. For human error in flight operations, the HFACS checklist shall be used. These checklists are posted on the IHST "SMS Toolkit" web page www.ihst.org/SMStoolkit/.

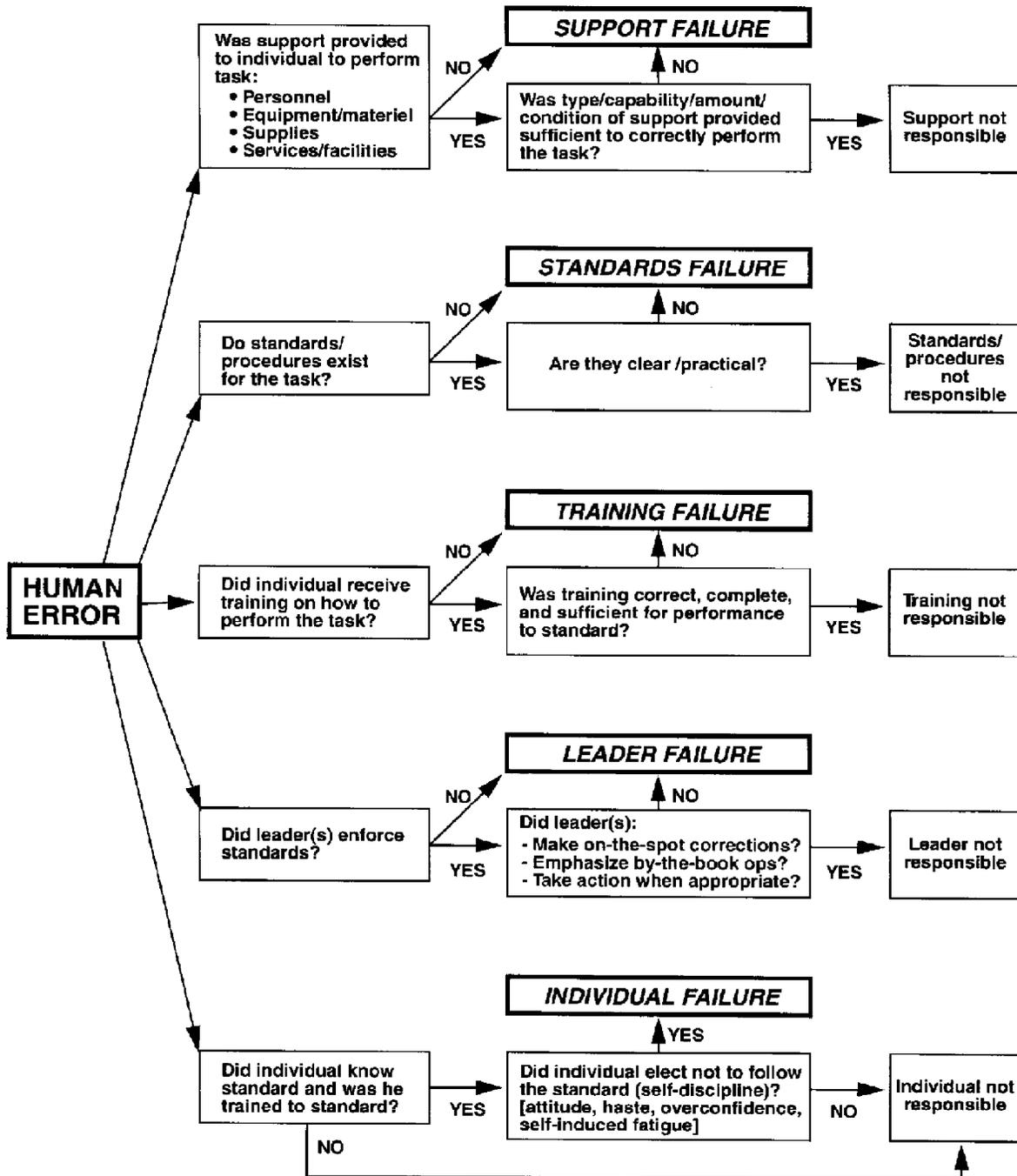
Safety Assurance Oversight Programs

The organization conducts annual base inspections. Records of base inspections and the resolution of actions are maintained by the safety officer. Issues identified in inspections are included in the agenda of the Safety Meeting. The safety officer is responsible for storing these documents.

The safety officer directs annual audits of the SMS. A sample checklist for audits can be found on the IHST website. Findings and associated corrective actions shall be recorded in the audit.

The safety officer should manage and store audit reports, which include findings and recommended corrective actions. Positive findings should also be recorded. Findings and recommended actions should be communicated to all personnel. A sample audit checklist can be found on the IHST website.

Determining System Inadequacy(ies) Responsible for Human Error



Safety Management Training Requirements

Employees shall receive SMS training, including:

- Organization commitment to safety
- Organization's Safety Policy
- Program Manager's Safety Philosophy
- Employee's role in the SMS
- Process for reporting occurrences
- Applicable emergency procedures

Minimum Safety Training Requirements

Type of Safety Training	Affected Personnel	Validity
Introduction SMS training	All Personnel	Initial/TBD
CRM/AMRM	Crewmembers	Initial/Annual
Job Specific Safety Training	Affected Personnel	Initial/TBD
Dunker/HEEDS	Crewmembers	Annual
Fire Escape Plan	All Personnel	Initial/TBD

Optional Safety Training Requirements

Periodic SMS Refresher Training	All personnel
Office Fire Fighting (basics)	All personnel
Fire Escape Plan	All personnel
Tractor Use	Crewmembers
Bio-Hazards	Pilots
Back Injury (correct lifting methods)	All personnel

Employee training files shall include the below form to record training, the date that training is next due, and the means of demonstrating competency, verbal or written as determined by the chief pilot. Training records shall be kept in the personal file of all personnel. The chief pilot is responsible for reviewing training files in order to ensure recurrent training is conducted on a timely basis.

Management of Change (MOC)

Procedures are established and maintained to manage changes associated with safety.

The systematic approach to managing and monitoring organizational change is part of the risk management process. Safety issues associated with change are identified and standards associated with change are maintained during the change process.

Procedures for managing change include:

- Risk assessment.
- Identification of the goals and objectives and nature of the proposed change.
- Operational procedures are identified.
- Changes in location, equipment or operating conditions are analyzed.
- Maintenance and operator manuals are posted with current changes.
- All personnel are made aware of and understand changes.
- Level of management with authority to approve changes identified.
- The responsibility for reviewing, evaluating and recording the potential safety hazards from the change or its implementation.
- Approval of the agreed change and the implementation procedure(s).

The MOC process has 4 basic phases: screening, review, approval and implementation. Both the effect of change and the effect of implementing change are considered.

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 competencies associated risks are assessed as part of the change control procedure.

Figure 1-3 describes the MOC process used by this organization.

MOC Process

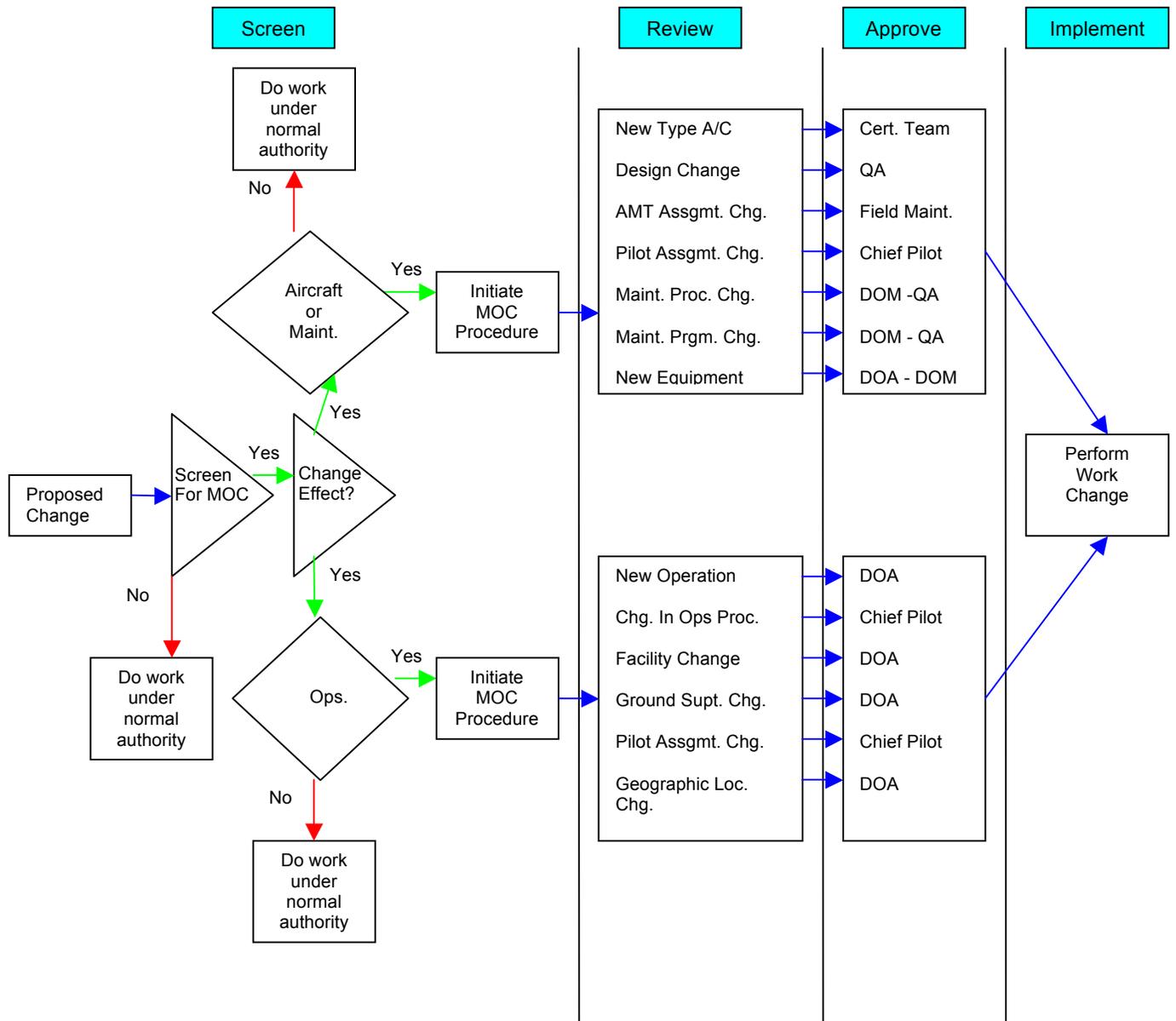


Figure 1-3

Emergency Preparedness and Response

The detail of the emergency response plan is contained in the Operations Manual.

The chief pilot is responsible for assuring that all personnel are trained to handle organizational emergencies based on their role in the organization.

Emergency drills shall be conducted at least annually to ensure employees are competent.

Emergency contact numbers shall be posted and kept current at every organization telephone.

Performance Management

Continual improvement and exemplary service to our customers is a "core value." Safety performance is measured by the following performance measures:

- Reduce the number incidents that cause damage and the amount of damage.
- Reduce the number of Incidents per 1,000 hours flown.
- Reduce the number of Injuries to organization personnel, guests and passengers.
- Increase the number of actions raised from safety meetings.
- Reduce the number of "near-miss" events.
- Reduce the number of non-compliances with standard flight operations procedures as measured by observation or flight data monitoring.
- Increase compliance with the safety incident management process (reporting, classification, root cause investigation, and implementation of corrective actions).
- Reduce the number of non-compliances with standard flight operations procedures as measured by observation or flight data monitoring.
- Reduce the number of non-compliances with standard flight operations procedures as measured by observation or flight data monitoring.

The chief pilot is responsible for ensuring organization performance is annually reviewed and employees are adequately informed of the results of the review.

Appendix A

SAFETY COMMITTEE

The Safety Committee comprises of at least 4 line medical personnel, 2 maintenance technicians, 2 line pilots and 1 representative from ATCEMS Communications. Safety Committee members shall be appointed by the Program Manager.

The Safety Committee shall assist in the administration of the Safety Program by performing the following functions:

- Collect and disseminate safety information.
- Analyze Safety Suggestions Forms, prepare recommendations and forward them through the Safety Officer to the Program Manager for action.
- Provide feedback and input through the Safety Officer to the Program Manager regarding all safety related matters.
- Follow up on recommendations to ensure compliance.
- Assist with Safety Training Programs as required.
- Assist with Safety Audits as required.
- Assist with Mishap Investigations at the direction of the PM or DAO.
- Meet at least monthly.

Appendix B

***STAR Flight* COMMITMENT TO SAFETY**

HAZARD ASSESSMENT and CONTROL

Overview: The ***STAR Flight*** Safety Program has been developed along the lines of cause and effect. This concept suggests that:

- Mishaps are caused by hazards, and
- Identification, control and mitigation / elimination of hazards may prevent mishaps.

The following procedures have been developed in support of this concept:

1. **Safety Suggestion Program:** The Safety Suggestion Program has been established to provide a method for any employee to make input to management through the safety committee regarding their ideas about how to make our workplace safer.
 - a. The ***STAR Flight*** Safety Suggestion Form is available on the "O" drive on the Travis County network. The form is in the "Forms" subfolder located in the Safety folder. Completed forms shall be forwarded electronically or placed in the Safety Officer's in-box at the Crew's Quarters.
 - b. The Safety Committee will review the forms and provide recommendations through the Safety Officer to the Program Manager. The Program Manager will provide formal feedback concerning disposition of the recommendation and status of corrective actions to the individual submitting the recommendation. In addition this information will be published in the Safety Meeting Minutes.
 - c. All personnel are encouraged to participate in the Safety Suggestion program.
2. **Contractors and Vendors:** Contractors, vendors, temporary maintenance personnel and City of Austin/Travis County personnel not assigned to duty at ***STAR Flight*** will adhere to safe practices and procedures while at ***STAR Flight*** facilities.

3. **Ongoing Work Place Review:** Every manager, supervisor or employee must actively and continuously engage in safety monitoring and inspection of their department work area. Any safety concern shall be reported immediately to a supervisor.
4. **Safe Practice Guidelines:**
 - a. **STAR Flight** Management has established safe practice guidelines for its various operations. These guidelines are intended to eliminate or control / mitigate identified or potential hazards. The Program Manager, Director of Aviation Operations, Chief Pilot, Director of Maintenance and supervisors are responsible for ensuring that these guidelines are updated and revised as necessary.
 - b. Guidelines relevant for each area of operation are posted in readily observable locations and are given to all personnel working in that area. Flight Operations guidelines are contained in the Travis County Flight Operations Manual, Hangar Manual, Training Manuals and Standard Operating Guidelines (SOG's) for each area of operation.
5. **Event and Hazard Reporting:** A system of in-house event reporting has been established to allow department management to identify specific operational areas and safety issues that warrant further review. This reporting system facilitates the collection of event data (anonymously if so desired) to assist in the identification of "root causes," so that appropriate measures (training, establishment or modification of procedures, etc.) can be implemented. The Occurrence and Hazard Reporting Form shall be used to report such an event.

CORRECTING HAZARDS AND PREVENTING RECURRENCE

The Program Manager will ensure that proper personnel are assigned to facilitate corrective action and prevent similar future occurrences. Examples of preventative action include, but are not limited to:

1. Replacement of all defective / broken tools and equipment.
2. Revision of the **STAR Flight** Safety Management System Manual or Standard Operating Guidelines (SOG's).
3. Re-training of personnel.
4. Monitoring the hazard to ensure that it remains corrected / controlled.
5. Dissemination of findings from all safety-related investigations to all employees.

Corrective action may take place in the form of an Initial Action or a Safety Committee recommendation:

1. Initial Action will vary depending on the nature and severity of the situation. Emergent situations require immediate attention and use of the equipment or process should be suspended immediately until further investigation either substantiates or clears the need for a suspension. Frequently, the initial action may be the only required correction.
2. On other occasions, the Safety Committee may recommend further action to rectify the situation. Recommendations shall be forwarded to the Program Manager for final decision.
3. Completion of Corrective Action: Upon completion of the corrective action, the Occurrence and Hazard Reporting Form will be filed and retained for at least two years. The Program Manager will disseminate the results to all employees.

COMMUNICATION OF SAFETY ISSUES

Proper communication with all personnel, both up and down the chain of command, concerning safety hazards and the methods used to control / mitigate them is paramount and will facilitate the safest possible work environment. The system for communicating with personnel on safety issues includes:

1. The Safety Management System Manual: A copy of this manual is maintained by the manager of each area of operations and is always available for review.
2. Safety Committee Meetings: The Safety Officer will facilitate safety committee meetings not less than quarterly. During these meetings the committee shall discuss and document all items such as:
 - a. New hazards that have been introduced or discovered in the work place.
 - b. Causes of any recent accidents or injuries and the corrective action adopted by **STAR Flight** to prevent similar mishaps in the future.
 - c. Any safety issue requiring attention.

The minutes from the Safety Meetings shall be published and disseminated to the entire staff.

1. Safety Briefings: shall be conducted during the monthly **STAR Flight** staff meeting and shall include committee recommendations, concerns and updates.
2. Occurrence and Hazard Reporting Form. **STAR Flight** has a system of notification

whereby personnel who wish to inform the Organization of safety hazards may do so by sending this Form. The form may be submitted anonymously at the discretion of the submitter and all such reports will be investigated in a prompt and thorough manner.

3. E-mail: Information regarding safety issues may be transmitted through the Travis County or City of Austin E-mail system.
4. Safety Board: Safety information will be posted as needed on the Safety Boards located at the hangar and crew quarters. Personnel are required to view data on the boards at the start of each shift.
5. Safety Training: Safety training shall be accomplished through daily crew interaction, initial and recurrent pilot and crew training, and monthly safety briefings.

Appendix C

AVIATION POST-ACCIDENT/INCIDENT RESPONSE PLAN

The purpose of an Aviation Post-Accident / Incident Response Plan is to provide a guide for actions that will be necessary in time of extremely high stress. The plan serves as a guide to present step-by-step instructions that will result in prompt, decisive action in the event of an accident or incident. The purpose is to ensure prompt rescue and medical attention for accident victims and to assist the families and co-workers of the accident victims.

The Chief Pilot is responsible for maintaining the Accident / Incident Response Plan. The Chief Pilot will also maintain a list of holders of the Accident / Incident Response Plan and will be responsible for distributing revisions when necessary. The plan will be reviewed annually each January for appropriateness and accuracy of names / phone numbers.

An exercise will be conducted annually to evaluate the effectiveness of the plan.

ENFORCEMENT OF THE ACCIDENT PREVENTION PROGRAM

At **STAR Flight**, safety must be integrated into our culture and every act performed. To achieve the primary goal of Zero Accidents, everyone must actively participate. Unsafe or careless action will be taken seriously and ultimately be reviewed by the Program Manager for proper disposition.

ACCIDENT INVESTIGATION

All work-related accidents, incidents and near misses will be investigated in a timely manner. A proper investigation of any mishap is the first step in preventing a future mishap of a similar nature.

Procedures for Investigating Accidents:

1. The Director of Operations, Director of Maintenance, Safety Officer and / or an Independent Investigator appointed by the Program Manager, will investigate all accidents or incidents involving **STAR Flight** aircraft or vehicles and report the findings to the Program Manager. Where necessary, the Program Manager may direct the Safety Officer to investigate circumstances involving safety issues.
2. Timelines of Investigations: All accidents shall be investigated as promptly as possible. When conducting an investigation, the accident investigator shall:

- a. Visit the accident scene as soon as possible: This will ensure that the scene has retained, as closely as possible, the position of all equipment, wreckage and switch positions, as well as actual witness marks created during the mishap.
- b. Save or preserve all physical evidence.
- c. Document details graphically using video, photographs, sketches or diagrams wherever appropriate. Use handheld GPS to identify the exact location of parts.
- d. Conduct Interviews:
 - When possible, the investigator shall interview the mishap employee(s) as soon as they are physically and mentally able.
 - Interview witnesses to the accident either at the scene or as soon possible after the mishap.
 - Obtain signed statements from crew and witnesses.

Prepare and file report: All reports of safety-related investigations will be presented to the Program Manager and a copy will be provided to the Safety Officer. Reports will list the specific factual findings, an analysis of the circumstances / cause(s) of the accident or incident and recommendations for action to prevent future mishaps.

Appendix D

LASER EXPOSURE GUIDE

INTRODUCTION:

Flight crewmember exposure to laser light, while operating an aircraft at night, has resulted in glare, flash blindness, and after image. Temporary visual impairment and the distraction, disorientation, and discomfort that can accompany it often result in hazardous situations. A database of aviation reports involving laser illumination of flight crewmembers has been established and maintained at the Civil Aerospace Medical Institute. A review of recent laser illumination reports was initiated to investigate the significance of these events.

METHODS:

Reports of high-intensity light illumination of aircraft were collected from Federal Aviation Administration (FAA) regional offices, Transportation Security Administration, Department of Homeland Security/Federal Bureau of Investigation Information Bulletins, the FAA's Office of Accident Investigation, newspaper articles, and interviews with pilots submitted by the airline industry. Reports that involved laser exposures of civilian aircraft in the United States were analyzed for the 13-month period (January 1, 2004 – January 31, 2005).

RESULTS:

There were 90 reported instances of laser illumination during the study period. A total of 53 reports involved laser exposure of commercial aircraft. Lasers illuminated the cockpit in 41 (46%) of the incidents. Of those, 13 (32%) incidents resulted in visual impairment or distraction to a pilot, including 1 incident that reportedly resulted in ocular injury. Nearly 96% of these reports occurred in the last 3 months of the study period. There were no aviation accidents in which laser light illumination was found to be a contributing factor.

CONCLUSION:

The study of laser illumination incidents in the national airspace system can identify the operational problems that result from such events. Improved reporting and analysis of laser events enhances aviation safety by providing the FAA with data necessary to assist in the development of methods for mitigating the effects of laser exposure.

LASER EXPOSURE PRE-MISHAP PLAN and REPORT

1. If a LASER eye injury is suspected or observed, a complete medical eye examination must be conducted by an ophthalmologist or optometrist as soon as practical following the overexposure. The DO/CP shall ensure the following steps are completed during initiation of reporting procedures:
2. Contact the Program Manager, Director of Aviation, Chief Pilot, and Safety Officer.
3. PM, DO, CP will contact a Flight Doctor as soon as possible to arrange eye exam.
4. Aircraft (circle one): N373TC N378TC
5. LASER System Color (if a color noted): _____
6. Mode (circle one): Takeoff, Enroute, Landing
7. Estimate of exposure time and distance: _____

8. Description of incident: _____

9. Extent of injury (if known): _____

11. Contact local law enforcement authorities with location and description of laser event.
12. Contact ABIA tower operations and report event location and time.
13. Telephone report with written follow-up to FAA (FSDO) with full description of laser event.
14. Complete Laser Beam Exposure Questionnaire and follow distribution instructions.

LASER BEAM EXPOSURE QUESTIONNAIRE**FAX TO WASHINGTON OPERATIONS CONTROL CENTER(WOCC) at (202) 267-5289 ATTN: DEN****PILOT NAME** _____
COMPANY _____**PHONE NUMBER** _____
FLIGHT NUMBER _____

1. Date and time (UTC)? _____
2. Position of event (lat/long and/or FRD)? _____
3. Altitude? _____
4. What was the visibility? _____
5. What were the atmospheric conditions? (Circle those which apply) – Clear, overcast, rainy, foggy, hazy, sunny.
6. What was the color(s) of the light? _____
7. Did the color(s) change during the exposure? _____
8. Did you attempt an evasive maneuver? _____
If so, did the beam follow you as you tried to move away? _____
9. Can you estimate how far away the light source was from your location? _____
10. What was the position of the light relative to the aircraft? _____
11. Was the source moving? _____
12. Was the light coming directly from its source or did it appear to be reflected off other surfaces? _____
13. Were there multiple sources of light? _____
14. How long was the exposure? _____
15. Did the light seem to track your path or was there incidental contact? _____
16. What tasks were you performing when the exposure occurred? _____
Did the light prevent or hamper you from doing those tasks, or was the light more of an annoyance? _____
17. What were the visual effects you experienced (after-image, blind spot, flash-blindness, glare*)? _____
18. Did you report the incident by radio to ATC? _____

Any other pertinent information: _____

This questionnaire may be filled out by the competent authority during interviews with aircrews exposed to unauthorized laser illumination. This information will be used to aid in subsequent investigation by ATC, law enforcement and other governmental agencies to safeguard the safety and efficiency of aviation operations in the NAS.

***Examples of common visual effects:**

After-image. An image that remains in the visual field after an exposure to a bright light.

Blind spot. A temporary or permanent loss of vision of part of the visual field.

Flash-blindness. The inability to see (either temporarily or permanently) caused by bright light entering the eye and persisting after the illumination has ceased.

Glare. A temporary disruption in vision caused by the presence of a bright light (such as an oncoming car's headlights) within an individual's field of vision. Glare lasts only as long as the bright light is actually present within the individual's field of vision.

Appendix E

FATIGUE MANAGEMENT AND SLEEP DEPRIVATION

Introduction

STAR Flight's around-the-clock demands pose unique physiological challenges for each of us who remain central to safe and productive operations. Optimal alertness and performance are critical factors that are increasingly challenged by unusual, extended, or changing work/rest schedules. Technological advancements and automated systems can exacerbate the challenges we face in these environments.

Shift work, meetings, required continuing education, and continuous operations engender sleep loss and circadian disruption. Both of these physiological factors can lead to increased sleepiness, decreased performance, and a reduced margin of safety. These factors can increase vulnerability to incidents and accidents in our operational setting. The consequences can have both societal effects (e.g., major destructive accidents such as Three Mile Island, Exxon Valdez, Bhopal) and personal effects (e.g., an accident driving home after a night shift).

Alertness management in operational settings

Alertness management strategies can minimize the adverse effects of sleep loss and circadian disruption and promote optimal alertness and performance in operational settings. Sleep and circadian physiology are complex, individuals are different, the task demands of settings are different, and schedules are extremely diverse; therefore, no single strategy will fully address the fatigue, sleepiness and performance vulnerabilities engendered by 24-hour operational demands. Rather than attempt to eliminate fatigue, it may be more useful to consider the critical factors that can promote and optimize alertness management. There are at least six critical factors that can be addressed for their role in managing fatigue in operational settings. These factors include: hours of service, scheduling, education and training, countermeasures, technology, and research. Each of these factors deserves attention to determine how scientific findings on fatigue, sleep, and circadian physiology can be incorporated and addressed in each area.

The application of 'strategic countermeasures' involves three components:

- understanding the physiological principles related to sleep and circadian rhythms;
- determining the specific alertness and performance requirements of a given operation;

- taking deliberate actions to apply the physiological principals to meet the operational requirements.

***STAR Flight* preventive strategies to Manage Fatigue and Sleep Deprivation**

1. Mandatory completion of an initial professionally developed (Z-Coach) educational course on alertness management (Operations Manual).
2. Periodic re-current training and education on the same subject.
3. Close management and monitoring of individual work/rest schedules.
4. Full leader support of the "Employee Readiness Policy".

***STAR Flight* operational strategies to Manage Fatigue and Sleep Deprivation**

1. Strategic naps during shifts.
2. Eat high protein meals (avoid high fat and high carbohydrate foods).
3. Drink plenty of fluids; especially water.
4. Caffeine can help counteract noticeable fatigue symptoms if awake for 18 hours or less.
5. Rotate flight tasks and converse with other crewmembers.
6. Keep the flight deck temperature cool.
7. Move / stretch in the seat, and periodically get up to walk around the aircraft if possible.
8. Gradually shift times for sleep, meals, and exercise.

CONCLUSION

Crewmember fatigue has been shown to be a hazard in EMS flight operations. Many factors contribute to fatigue in the EMS aviation environment. Circadian rhythm disruption, prolonged work schedules, inadequate crew rest, and inadequate restful sleep contribute to the potential for fatigue. When the regulations regarding "rest" are compared to identified requirements for "restful sleep," one can see that adequate restorative rest may not occur. Enhanced training is critical to prevent fatigue, and to recognize it when it occurs so that effective countermeasures can be employed. Doing so will help insure that crews fly adequately rested and alert thereby improving flying safety.

Appendix F

SAFETY STAND-DOWN PROGRAM

Introduction

Reducing Preventable Accidents; World-class organizations do not tolerate preventable accidents. EMS accident rates have increased dramatically recently, and we need to do our part to turn this situation around. A goal of "zero" accidents is achievable, and attaining it will directly increase our operational readiness and responsiveness to the citizens of Travis County. We owe our best efforts to the men and women who crew the Travis County *STAR Flight* helicopters.

A *STAR Flight* SAFETY STAND-DOWN is one tool that the PM or DAO can use to achieve this goal. Since safety stand-downs are required at various phases in an aviation operational environment, they represent a unique chance to really cover some relevant and necessary topics.

A *STAR Flight* SAFETY STAND-DOWN is a dedicated period of time, usually 1/2 to 2 days, when the program concentrates on safety issues and training. Usually, all other operations cease during the safety stand-down. The safety stand-down is a program wide event, so participation is mandatory by all crew members and supervisors.

Requirements

A safety stand-down is generally directed the PM or DAO in response to a serious mishap or near mishap, or to improve safety readiness before major events, such as deployments, major inspections, overhauls, and before holidays.

Safety and occupational health are inherent responsibilities of *STAR Flight* management. It is thus up to individual management and staff to plan and conduct the stand-down. The objectives are to increase operational readiness, evaluate safety and health risks, correct deficiencies, and emphasize awareness of good safety and health practices for all personnel.

Safety stand-downs can be conducted at anytime. *STAR Flight* management can use this tool as a means to address specific concerns at their discretion. The FAA, NTSB, and other higher authorities occasionally will recommend industry wide safety stand-downs to address their concerns.