**U.S. DEPARTMENT OF TRANSPORTATION**
FEDERAL AVIATION ADMINISTRATION
Air Traffic Organization Policy

**ORDER JO 1000.39**

Effective Date:
9/30/07

**SUBJ:** Air Traffic Organization En Route and Oceanic Services Safety Management System

The United States has the safest, yet most complex aviation system in the world. To maintain and improve the safety of the National Airspace System (NAS), the Federal Aviation Administration (FAA) assigns the highest priority to improving safety, with the fundamental goal of eliminating unacceptable risk from the NAS. As changes to the NAS become more complex—involving more systems and cross-organizational relationships—safe Air Traffic Control (ATC) and navigation services become even more crucial. The introduction of new systems and technologies into the NAS will require new safety policies and processes. Accordingly, the FAA is developing and implementing an integrated Safety Management System (SMS) within the Air Traffic Organization (ATO). The SMS integrates new safety elements into current ATO safety processes, procedures, policies, and programs. With the SMS, ATO can ensure the highest level of safety as it continues to improve services.

Two FAA Orders require the implementation and operation of SMS within ATO: FAA Order 1100.161, *Air Traffic Safety Oversight,* which establishes the oversight relationship between the ATO and the Air Traffic Safety Oversight Service (AOV); and ATO Order JO 1000.37, *Air Traffic Organization, Safety Management System.* Key elements of the SMS are also required by the International Civil Aviation Organization (ICAO) Annex 11, to which the United States is a signatory. As an operational service unit in the ATO, En Route and Oceanic Services (ATO-E) is implementing the SMS to comply with the requirements of ICAO, the FAA, AOV, and ATO.

This order defines the policy, priorities, application, and supporting documents of the SMS within ATO-E to ensure its successful implementation by March 14, 2010. The order identifies the strategic and tactical safety responsibilities of ATO-E employees and the safety processes involved with ATO-E navigation and ATC services. Finally, it discusses the SMS requirements and safety standards under which the ATO-E operates.

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Distribution: ATO-E; Air Traffic Services Areas and Centers; A-Z-1; FAT-1

Initiated By: AJE-1

## Chapter 1. General Information and Responsibilities

**1. Purpose of This Order.** This order provides guidance for the implementation of the Safety Management System (SMS) requirements within the Air Traffic Organization En Route and Oceanic Services (ATO-E).

**2. Audience.** All En Route and Oceanic employees.

**3. Where Can I Find this Order.** You can find this order on My FAA website: https://employees.faa.gov/tools_resources/orders_notices/

**4. Effective Date.** This order is effective September 30, 2007.

**5. Background.** The FAA, in accordance with its international civil aviation responsibilities, must implement formal SMS, including Safety Risk Management (SRM) procedures for evaluating potential safety hazards associated with changes to the National Airspace System (NAS). Each ATO Service Unit is tasked with the responsibility for establishing safety policy and procedures, promoting a "safety culture," implementing SRM procedures, and developing a process to ensure the SMS is implemented as detailed in the *ATO SMS Manual.*

This order recognizes FAA, AOV, and ATO orders, policies, procedures, the *ATO SMS Manual* and the *Safety Risk Management Guidance for System Acquisitions (SRMGSA)* as providing the standards and requirements for the SMS.

**6. Scope.** The NAS comprises documents, personnel, procedures, systems, and services used to provide Air Traffic Control (ATC) and navigation services. This order applies to all components of the NAS owned and/or operated by ATO-E and to every level of ATO-E. SMS includes a monitoring function to ensure recommended safety mitigations are implemented and operate as expected (a process sometimes referred to as a closed-loop process). The analysis, treatment, and monitoring of hazards often require coordination among multiple organizations. SMS orders, guidance materials, and implementation plans developed within ATO-E detail the processes and interactions among Service Units, Service Areas, Service Centers, Air Route Traffic Control Centers (ARTCCs) and other organizations necessary to meet the requirements of this order.

SMS focuses on the safe provision of ATC and navigation services. SMS does not, however, address occupational safety, e.g., the Occupational Safety and Health Administration (OSHA), physical security, or information security, because the FAA has robust programs in place for those areas. Nevertheless, when an SRM panel identifies OSHA and/or security issues, the panel should report them to management for sending to the proper office.

**7. Goal and Objectives.** The goal of SMS and this order is to ensure ATO-E accepts identified and adequately mitigated (accordant with the *ATO SMS Manual)* risks into the NAS and, then, only after 1) those risks have been mitigated to an acceptable level and 2) plans have been developed for monitoring the mitigations as required by the *ATO SMS Manual.* This order identifies four objectives to achieve its stated goal. The objectives correspond to the four components of SMS, as detailed in ATO Order JO 1000.37. The objectives are summarized below:

**a. Safety Policy.** ATO-E employees must understand and apply relevant safety policies. Implementation and support of these safety policies mandate that ATO-E managers at all levels commit to high safety performance. They must lead by example in ATO-E's efforts to continually improve safety in all aspects of providing ATC and navigation services. All ATO-E employees must establish and support safety objectives that are measurable and achievable. All ATO-E systems must meet safety performance objectives as required by the *ATO SMS Manual.*

**b. Safety Risk Management.** ATO-E employees must assess any changes to system design, operations, and/or procedures in the regular performance of their duties. They must incorporate safety risk assessment and mitigation strategies into their task performance. This assessment is required by, and must be compliant, with all elements of the SMS policies and procedures. This assessment must identify risks to safety and either eliminate those risks, or develop controls that will manage the risks to an acceptable level throughout the lifecycle of the system. System users must be involved in the decision process for risk identification and mitigation and must be kept informed on the status of safety considerations. ATO-E employees must assess and minimize safety risk that result from human error in operating, maintaining, training, and supporting systems under review. They must also evaluate and minimize safety risks that result from harmful environmental conditions. When safety risk associated with a system cannot be eliminated, ATO-E employees must formally document the analysis and acceptance of these risks in a SRM Document (SRMD). The hazards must be tracked using a database provided by ATO Safety Services (ATO-S), e.g., Hazard Tracking System (HTS), accordant with the SMS requirements. If determined that no additional SRM analysis is required for the proposed change, ATO-E employees must document this information in a SRM Decision Memorandum (SRMDM).

**c. Safety Assurance.** ATO-E employees must continuously assess and monitor operations and performance of new systems, processes, and procedures. This must be done to identify and report hazards, assess these hazards, maintain controls effective throughout the system life cycle, and ensure new hazards have not been introduced into the NAS due to changes in the operational environment or other factors. Tracking and "lessons learned" databases must be established and maintained to archive actions taken to eliminate or reduce safety risk. ATO-E employees must consider and use historical hazard data when available, including "lessons learned" from other applications.

**d. Safety Promotion.** ATO-E management must support awareness and the importance of complying with this order by all ATO-E employees. ATO-E management must sponsor and disseminate orders, policies, procedures, processes, training, and other activities that will continuously improve safety. ATO-E employees must promote a safety culture by shaping new attitudes, processes, and structures affecting individuals and the organization.

**8. Transition to SMS.** Implementation of the SMS within ATO-E must be completed by March 14, 2010. Additional tools, training requirements, competencies, and processes to reach this milestone may be identified at a later time. The ATO-E SMS Implementation Plan will describe implementation activities, tasks, and timeframes to achieve completion. While the *ATO SMS Manual* provides implementation guidance, this order provides specific requirements for all

elements of ATO-E to begin using the SMS. This order will be revised as the ATO SMS processes and requirements evolve and mature.

**9. Requirements.** This order recognizes the *ATO SMS Manual* and the *SRMGSA* as providing the requirements for the SMS. Given the time period for transitioning to SMS, certain ATO-E processes and program areas will have a high priority to transition to full compliance with the requirements of the *ATO SMS Manual.* Other processes and program areas will transition over a longer period of time or will continue to use existing safety analysis and documentation processes. These processes and program areas are in Appendix 1. Items 2 and 3 in Appendix 1 will be transitioned in phases, as described therein.

The processes and program areas identified in Appendix 1 (except for item 1) will be modified to meet SRM requirements accordant with the *ATO SMS Manual* so they are compliant with SMS by March 14, 2010.

**10. Responsibilities.** The ATO-E Safety and Operations Support Office manages the ATO-E SMS efforts. This Office is responsible for ensuring all ATO-E organizations support and comply with the SMS. The Safety Manager and a Safety Engineer are responsible for coordinating the SMS efforts. The ATO-E managers with primary responsibility for implementing and supporting the SMS are the ATO-E Vice President, Safety Manager, Safety Engineer, other directors/managers, and program managers. All ATO-E employees are responsible for implementing the SMS. The following provides examples of roles and responsibilities.

**a. Vice President**

(1) Promote a safety culture that comprises new attitudes, processes, and structures affecting individuals and the organization

(2) Allocate sufficient resources, funding, and personnel to implement and maintain the SMS

(3) Accept hazards assessed with an initial high risk accordant with the *ATO SMS Manual* and the *SRMGSA*

**b. Safety Manager**

(1) Develop and monitor an ATO-E SMS Implementation Plan that supports the four elements of the SMS: Safety Policy, SRM, Safety Assurance, and Safety Promotion

(2) Conduct Service Unit safety planning and monitoring to ensure the ATO-E SMS Implementation Plan compliance

(3) Promote a safety culture that comprises new attitudes, processes, and structures affecting individuals and the organization

(4) Ensure ATO-E meets the SMS requirements accordant with the *ATO SMS Manual* and related orders

(5) Provide support/consultation on safety management within the Service Unit to ensure proper implementation and application of the SMS

(6) Accept hazards assessed with initial medium or low risks accordant with the *ATO SMS Manual* and the *SRMGSA*

(7) Approve SRMDs accordant with the *ATO SMS Manual* and the *SRMGSA*

(8) Facilitate intra-service unit coordination on safety-related matters

(9) Provide input and advice on safety to the ATO-E Vice President

(10) Collect, track and analyze safety data applicable to ATO-E accordant with ATO Order JO 1000.37

(11) Support Quality Assurance and Evaluation audits

**c. Safety Engineer**

(1) Support the four elements of the SMS: Safety Policy, SRM, Safety Assurance, and Safety Promotion

(2) Work with program managers to define specific projects and to clarify and refine SRM requirements and responsibilities for the processes and program areas identified in Appendix 1

(3) Support, advise, and assist program teams in applying SRM tools and techniques

(4) Develop necessary process revisions, guidance materials, directive/handbook updates to apply the SMS within the ATO-E environment

(5) Assist program managers in meeting the SMS training requirements

(6) Review completed SRM documents (with all necessary supporting safety studies, reports, etc.) and coordinate with ATO-S and AOV, as appropriate

(7) Ensure processes and programs meet the high-level safety objectives as detailed in the *ATO SMS Manual*

(8) Consolidate necessary safety change/action reports and coordinate with ATO-S and AOV as detailed in the *ATO SMS Manual*

(9) Promote the ATO-E safety culture

(10) Manage and track risk mitigation assessment efforts using a database provided by ATO-S, e.g., HTS accordant with the SMS requirements to verify safety levels are maintained as required by the *ATO SMS Manual*

(11) Monitor the effectiveness of the overall ATO-E Safety Program

(12) Coordinate with ATO-S, AOV, International Civil Aviation Organization (ICAO), and other organizations that may audit implementation and application of SMS within ATO-E

(13) Update Appendix 1 of this order as needed

**d. Directors/Managers**

(1) Support the four elements of the SMS: Safety Policy, SRM, Safety Assurance, and Safety Promotion

(2) Monitor and account for the safety performance of the NAS in their areas of responsibility

(3) Encourage employees to report safety concerns

(4) Ensure their areas of responsibility meet the SMS requirements accordant with the *ATO SMS Manual* and related orders, processes, and documentation

(5) Promote a safety culture that comprises new attitudes, processes, and structures affecting individuals and the organization

**e. Program Managers**

(1) Support the four elements of the SMS: Safety Policy, SRM, Safety Assurance, and Safety Promotion

(2) Work with the ATO-E Safety Engineer to ensure all technical personnel/specialists in the program offices have completed the training for SRM practitioners accordant with the schedule established in the ATO-E SMS Implementation Plan

(3) Conduct the applicable SRM process for projects listed in Appendix 1, accordant with the *ATO SMS Manual*

(4) Provide support for internal audits and reviews conducted by the ATO-E Safety Engineer, ATO-S, or AOV and for external audits conducted by ICAO

(5) Establish a records retention process to ensure SRMDMs, SRMDs, and other relevant safety documents and updates are cataloged and saved. For SRMDs, this includes a monitoring

plan as defined in the *ATO SMS Manual*

(6) Forward completed SRM documentation (with all necessary supporting safety studies, reports, etc.) to the ATO-E Safety Engineer for review and coordination with ATO-S and AOV as defined in the *ATO SMS Manual*

(7) Manage and track risk mitigation assessment efforts using a database provided by ATO-S, e.g., HTS to verify safety levels are maintained as required by the *ATO SMS Manual*

**f. Employees.** All ATO-E employees must comply with established safety standards, the SMS, and any safety directives issued by ATO-E, ATO-S, and/or AOV within their areas of responsibility

**11. Distribution**. The Office of ATO-E Safety and Operations Support will distribute this order to ATO-E Washington Headquarters, the William J. Hughes Technical Center (WJHTC), Service Areas, Service Centers, and ARTCCs.

## Appendix 1. En Route and Oceanic Services Processes and Program Areas; Focus for the SMS Implementation

The following major functions, processes, and programs are the focus of the implementation of the SMS in ATO-E (the list is not all inclusive) to ensure compliance with SMS by March 14, 2010:

1. Second Level Engineering at WJHTC for legacy systems with an end-of-life of 2008 or sooner, or which will be replaced by a new ATO-E system, must have a safety analysis of system changes using current safety processes.

- Display System Replacement (DSR)/User Request Evaluation Tool (URET)
- Host Computer
- Enhanced Back Up Surveillance (EBUS)
- Offshore Flight Data Processing System (OFDPS)
- Host Interface Device/National Airspace System Local Area Network (HNL)
- Flight Data Input/Output (FDIO)
- Data Position (DPOS)
- Weather and Radar Processor (WARP)

2. Second Level Engineering at WJHTC for legacy and future systems will evolve their safety analysis of changes to the SRM process.

- En Route Communications Gateway (ECG)
- Traffic Management Advisor (TMA)
- Advanced Technologies and Oceanic Procedures (ATOP)
- Microprocessor — En Route Automated Radar Tracking System (MEARTS)
- Flight Data Processor (FDP)
- Dynamic Ocean Tracking System (DOTS)
- Host Air Traffic Management Data Distribution System (HADDS)

3. Future upgrades to programs under contract or going through the Acquisition Management System (AMS) will follow the SRM process with the first national release after they are operational.

- En Route Automation Modernization (ERAM) and En Route Information Display System (ERIDS) starting with Release 2

- WARP Replacement and the Surveillance and Broadcast Services (SBS) Program are following the SRM process accordant with the AMS process

4. NAS Change Proposals will follow the SRM process accordant with Order N JO 1800.1.

5. The SRM process will be applied to new or changes to existing ATC separation standards and

procedures, airspace changes, or other procedures that would have a direct operational impact on pilots or controllers requiring analysis and review by and coordination with Flight Standards Service, including but not limited to the following:

- Document Change Proposals
- Notices
- Waivers
- Responses to the National Transportation Safety Board, the Department of Transportation Office of Inspector General, or Congress
- Differences filed with ICAO