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FEDERAL AVIATION ADMINISTRATION SAFETY MANAGEMENT SYSTEM IMPLEMENTATION STATUS

(Presented by the United States)

SUMMARY

The United States Federal Aviation Administration (FAA) recognizes that maintaining and improving safety in our increasingly complex system requires us to take a proactive approach and to be innovative. We believe the key to achieving this is to institute an internal Safety Management System (SMS) across the FAA, beginning with the Aviation Safety Organization (AVS), the Air Traffic Organization (ATO), the Office of Airports (ARP), the Office of Commercial Space Transportation (AST), and the Next Generation Air Transportation System office (ANG). The FAA SMS will be a major component of the US state safety programme. This paper will provide an overview of safety management activities of AVS, ATO, and ARP.

1. INTRODUCTION

1.1 The United States Federal Aviation Administration believes that implementation of an internal Safety Management System (SMS) is imperative to our journey toward an innovative and world class organization that continually enhances safety for the traveling public. We define SMS as an integrated collection of processes, procedures, and programmes that ensures a formalized and proactive approach to system safety through risk management. Our SMS model is comprised of the following components: safety policy, safety risk management (SRM), safety assurance (SA) and Safety Promotion (SP).

1.2 The implementation of SMS brings system safety concepts into service provider organizations by requiring the managements of those organizations to demonstrate a capability to identify hazards and develop, implement, document and maintain effective risk controls. This also allows the FAA a means of evaluating the service providers' programmes for managing safety, including compliance with existing regulations and standards, without waiting for failures and instances of non-compliance.

1.3 The FAA SMS will be a major component of the United States' state safety programme (SSP). The US SSP will be further enhanced by the incorporation of safety management concepts into our

internal processes and proactively managing risk. The FAA, destination 2025[1] states: "We will take action to manage risk by proactively identifying hazards and risk based on continuous analysis of data".

1.4 The United States has developed SMS requirements at the national level and documented them in the Joint Planning and Development Office (JPDO) SMS standard. This document establishes SMS requirements for JPDO member agencies, which includes all federal departments that are stakeholders in the United States air transportation system. Additionally, the FAA has recently revised Order 8000.369A, *Safety Management System Guidance*, to provide enhanced guidance for implementation of a common SMS within the FAA. Order 8000.369A establishes the foundation for FAA compliance with the JPDO SMS Standard and the requirements of ICAO's SSP framework that are within the purview of the FAA.

1.5 In accordance with Order 8000.369A, the FAA established an FAA SMS Committee and Council. The purpose of this committee is to ensure consistent SMS implementation and planning across the FAA by recommending policy and process guidance. The FAA SMS Council provides top level executive directions for this activity. Sections below provide the safety management system status of AVS, ATO and ARP.

2. DISCUSSION – Aviation Safety Organization

2.1 In February 2013, AVS revised Order VS 8000.367A, *Aviation Safety (AVS) Safety Management System Requirements*. This document builds upon concepts in the JPDO SMS standard, ICAO's SSP framework and FAA SMS Guidance. It establishes requirements and provides enhanced guidance for the SMS that AVS and its sub-organizations including those with oversight responsibilities to study the possibility of instituting SMS requirements for entities they oversee.

2.2 AVS has also established an SMS programme office. The mission of this office is to define, direct and manage the transformation of AVS to an SMS construct to include: developing strategies and planning for the SMS; designing and developing the processes and products necessary for an effective SMS; ensuring standardization in sub organizational implementation of SMS; integrating sub-organizational safety management systems into a cohesive AVS SMS; collaborating and sharing lessons learned with other civil aviation authorities; conducting outreach within AVS and the aviation industry; and enhancing the system as necessary.

2.3 AVS SMS programme office has created a detailed SMS implementation plan to focus on transforming processes to create a more risk-based oversight system, allowing AVS to more efficiently allocate resources to identify, address, and mitigate risk in the aerospace system. The SMS implementation plan also strives to address the intent of the International Civil Aviation Organization (ICAO) SMS requirements for Annexes 1, 6, and 8. As such, AVS has initiated rulemaking activities for large air operators and design and manufacturing.

2.4 The AVS Flight Standards Service (AFS) has implemented pilot projects with the aviation industry. The participants in the pilot projects include large airlines, commuter airlines, air charter and air taxi operators training organizations, and maintenance organizations. AFS has published many documents to assist participants in the pilot project, including Advisory Circular (AC) 120-92A, an implementation guide, gap analysis tools, and evaluation tools. This provides the framework for the service providers to develop SMS and for FAA Personnel to evaluate progress and final implementation. These pilot projects allow service providers and AFS personnel to gain experience and information about

[1] The destination 2025 is a long-term strategic vision for transformation of the nation's aviation system and the FAA itself.

SMS implementations and will assist in creation of improved guidance and oversight methodology. The pilot projects will also give the FAA a means of validating implementation timeline requirements for SMS rulemaking.

2.5 The AVS Aircraft Certification Service (AIR) initiated a pilot programme for design and manufacturing (D&M) organizations, called Manufacturers Safety Management System (MSMS). MSMS pilot project is an industry outreach effort that seeks to collect input on potential rulemaking requirements, scalability, applicability, implementation, assessment, oversight methods, and tools and guidance as they relate to the D&M organizations. Also, AIR has employed SMS concepts within AIR's own processes and culture. AIR has developed tools and processes for standardized risk based resource targeting and the management of risk for continued airworthiness. AIR has recently engaged the manufacturing community to address oversight methodologies with respect to SMS.

2.6 In March 2005, the FAA issued Order 1100.161, Air Traffic Safety Oversight, establishing the air traffic safety oversight service (AOV) within AVS to perform independent safety oversight of ATO's provision of air traffic services. One of the functions of AOV is to provide oversight and assess performance of ATO's SMS. AOV performs its oversight responsibility over ATO's SMS through systematically capturing and analyzing safety data for trends and hazards and ensuring that systems are changed accordingly.

2.7 The AVS SMS is enabling AVS organizations to leverage each other's programmes, processes and activities to develop an integrated system that transforms AVS through SMS.

3. DISCUSSION – Air Traffic Organization

3.1 In March 2010, the ATO SMS was approved by the FAA air traffic safety oversight service in accordance with the provisions of FAA Order 1100.161 Air Traffic Safety Oversight. The ATO Office of Safety and Technical Training (AJI) manages the execution of the ATO SMS and as such continues to design, develop, and establish safety policies, plans, processes, and training. To facilitate the continuous improvement of the SMS, AJI has been restructured into three directorates (Safety, Technical Training, and Policy and Performance) which work together in a matrixed structure to support the four pillars of the ATO SMS: safety policy, safety risk management, safety assurance, and safety promotion.

3.2 The ATO continues to move towards a more systemic view of safety within the National Airspace System (NAS). This view places more value on discovering why adverse safety conditions happen and a systematic method for analyzing system risk within the NAS by utilizing the ATO risk analysis process (RAP). Consistent with this philosophy, the ATO has issued new safety guidance as follows:

- FAA Order JO 7210.632 ATO Occurrence Reporting, which provides guidance for mandating ATO air traffic occurrence reporting.
- FAA Order JO 7210.633 ATO Quality Assurance Programme, which explains the responsibilities within the ATO for conducting risk analysis, identifying safety trends, and conducting safety assessments.
- FAA Order JO 7210.634 ATO Quality Control, which provides guidance for coordinating and conducting external compliance verification activities.
- FAA Order JO 7200.20 voluntary safety reporting system, which defines the policy and procedures for ATO Voluntary Safety Reporting Procedures (VSRPs).

3.3 The ATO SMS Manual, initially published in 2004 and updated in 2007, is currently being updated, as is FAA Order JO 1000.37, *Air Traffic Organization Safety Management System* (last updated in March 2007). When approved, both documents will allow the ATO to better manage its SMS

by improving its safety policy, processes, and procedures. Embedded within the requirements of the revised order and manual will be an emphasis on the application of integrated safety management to reduce safety gaps as aviation concepts are developed and implemented. This will enhance the ATO's support of the United States Next Generation Air Traffic Control System (NextGen) safety initiatives and the evaluation and improvement of safety standards and global harmonization efforts to align with ICAO and Civil Air Navigation Services Organisation (CANSO) SMS standards. The revised order and manual will also enhance ATO safety assurance activities which provide the confidence that our service and process improvements are effective.

3.4 The prime purpose of the ATO remains the provision of safe and efficient air traffic control and navigation services within the NAS and in United States controlled international/oceanic airspace. While the ATO strives to maintain safety in the NAS for those services it provides, the ATO also wants to continuously improve its SMS by honing its policies and applications to ensure safety and support a positive safety environment.

4. DISCUSSION – Office of Airports

4.1 In accordance with Annex 14, ARP fully endorses the initiative to incorporate SMS in the certification of airports hosting international operations. ARP believes SMS requirements provide practical tools for systemic risk management and overall safety management within the airport environment. SMS also provides structured tools to meet requirements of existing legislation on the part of both government agencies and product/service providers. To this end, ARP is in the process of implementing SMS for certificated airports.

4.2 ARP is actively engaged in a rulemaking project to incorporate SMS requirements into its current regulatory framework. As part of that process, ARP has undertaken numerous efforts to determine the best means of SMS implementation within the variety of airports holding an operating certificate throughout the country, including industry research, the development of advisory guidance, and pilot studies.

4.3 ARP, in concert with the Transportation Research Board (of the National Academies) Airport Cooperative Research Programme (ACRP), conducted research to create a guide for the development of SMS within airports. ACRP also published research on the legal implications of SMS outcomes based on concerns about the legal challenges airports may face with new data collection, risk management, and documentation requirements under the SMS.

4.4 In February 2007, ARP issued Advisory Circular 150/5200-37, *Introduction to Safety Management Systems for Airport Operators*, to provide airports with a conceptual introduction to SMS processes. In June 2012, the agency published a revised draft to this Advisory Circular. ARP received comments on the draft revision from airport operators, industry associations, and consultants and is currently reviewing those comments. Once the agency's rulemaking project nears completion, ARP will need to update this document again to provide guidance for compliance with regulation and will develop complementary guidance to help FAA inspectors evaluate the airports' SMS and determine its conformance to regulation.

4.5 ARP initiated three pilot studies in cooperation with airports holding an operating certificate throughout the country. Since 2007, over 30 airports with varying levels of operations have participated in these studies, which range from the development of an SMS Manual and Implementation Plan to Proof-of-Concept to Implementation studies.

4.6 ARP recognizes that many existing regulatory requirements, such as training, communications, record-keeping, self-inspection, and emergency planning, can all serve as the building blocks for the various components of the SMS. Further, many airports have extensive occupational health and safety programmes which can aid in the development of operational safety management programmes such as the SMS. This is encouraging news that will facilitate full SMS implementation once specific requirements have been established through regulation.

4.7 ARP is applying the concepts of SMS to its own internal operations. In accordance with Agency standards, the associate administrator for airports published Order 5200.11, *FAA Airports Safety Management System* in August 2010. The Order establishes ARP's internal policy and requirements for infusing the components and elements of SMS into areas of oversight including, standards development, planning, and other oversight activities. In June 2012, ARP published *The Office of Airports SMS Desk Reference* to complement the Order and give practical guidance on the implementation of SMS throughout the organization. At its core, ARP is now incorporating formalized safety risk management practices into its oversight and approval processes which include the approval of Airport Layout Plans and Construction Safety and Phasing Plans, and requests for modification of Standards. This will not only increase capability for continuous improvement, but it will also improve the Agency's ability to promulgate policy and guidance while applying a systems safety approach.

5. CONCLUSION

5.1 Recognizing that safety management is becoming the standard for safety worldwide, the FAA believes incorporating safety management concepts into our aviation system will further enhance our state safety programme. As such, the FAA is incorporating these concepts into both its internal processes and has initiated studies to identify the best options for the organizations we oversee.

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