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of Transportation
**Federal Aviation
Administration**

SOC

Safety Oversight Circular

SOC 07-02

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Air Traffic Safety
Oversight Service (AOV)

**Subject: AOV Concurrence/Approval at Various Phases of Safety Risk Management
Documentation and Mitigations for Initial High-Risk Hazards**

1. PURPOSE: This safety oversight circular (SOC) provides information and guidance on how the Air Traffic Organization (ATO) may develop a process for reducing the likelihood of disapproval of initial high-risk hazard mitigations documented in Safety Risk Management Documents (SRMD) submitted to the Air Traffic Safety Oversight Service (AOV). This SOC describes a process for AOV concurrence at several phases of the SRM process; thus, providing guidance and reassurance to Safety Risk Management Panels (SRMP) and others within the ATO responsible for changes to the National Airspace System (NAS).

2. BACKGROUND: AOV has reached different conclusions, with regard to the evaluation of risk, methods, data, and evaluation of residual risk, etc., than those reached by ATO staff after several months or years of work towards the development of an SRMD. These differences have resulted in approval delays and may in the future result in disapprovals. This could result in programmatic delays and may create additional work to be performed by AOV and ATO to address fundamental issues that could have been resolved earlier in the risk assessment process.

3. DISCUSSION:

a. There is inherent risk associated with reaching a common understanding over a complex product development/operational issue. Waiting until the end of a process to approve controls or mitigations carries the programmatic risk that the controls might not be approved, which might cause a cost or schedule breach.

b. ATO is required to obtain AOV approval for proposed mitigations for initially identified high-risk hazards (HRH). Approval is primarily based on the safety analysis (SA) or SRMD provided by the ATO. Although AOV approval of the SA or SRMD itself is not required, the documentation is critical in establishing a foundation for approval of the proposed mitigations. At present, there is no requirement for ATO to consult with AOV at any point in the development of an SRMD before completion. This means that if initial HRHs are identified and mitigations developed, AOV may not be aware of them until a request is submitted for approval.

c. The current framework for an AOV approval without prior consultation is not working well for current operations and will not meet the needs for future acquisitions. This may result in

unacceptable programmatic risk since monetary/time commitments are being made to develop safety mitigations that might not be approved by AOV.

4. DISPOSITION: This guidance does not constitute a change to any requirement contained in FAA orders, manuals, etc. However, appropriate standard operating procedures should be changed to reflect the processes defined in this SOC. Adherence to this guidance will facilitate AOV approvals of HRH mitigations.

5. GUIDANCE: For acquisition projects and changes to the NAS likely to involve initial HRH or any complex change with unknown impact/integration challenges, ATO may obtain concurrence at specific phases of the SRM process before submission of a completed SRMD, thus ensuring potential differences are resolved at the earliest opportunity and reducing the likelihood of costly revisions or schedule delays at the end of the process. We acknowledge that the phases described below may not be as discretely distinct and as separated in time in an SA involving, for example, an Air Traffic Control (ATC) procedure or as that of an acquisition and thus, the “consultation and feedback” between AOV and ATO may be more compressed. However, for major NAS changes, there should be agreement between AOV and ATO on the definition of issues, the boundaries of the analysis, the approach to the assessment, and the basic assumptions of the assessment before the SRMP convenes. AOV is prepared to provide concurrence at the conclusion of each of the following identified SRM phases:

a. Phase I: Safety Definition Phase. Consists of a full description of the system and its interfaces or changes being considered. This phase should include a description of the safety requirements that apply and an assessment of how safe the system or change needs to be in the context of the full system¹; including the assumptions being made, identification of human factors risks, specification of concept requirements, and setting of safety objectives. A Preliminary Hazard List (PHL) and expected severity of each hazard will be established and provided. In the Acquisition Management System (AMS), this is provided at the end of the Mission Need Analysis and documented in the Operational Safety Assessment (OSA).

- **AOV Response to Phase I:** AOV will review the OSA or similar SA or proposal and provide an initial concurrence on the bounding of the system under development or change and determination of safety objectives based on the established severity of the identified hazards.

b. Phase II: Mitigation/Solution Development/Control Validation Phase. Consists of the identification of potential solutions/mitigations being considered and an evaluation of the feasibility for each option; to include identification of the hazards associated with system use and the predicted residual risk described in terms of severity and likelihood. This phase establishes that the proposed solutions and mitigations of the design or change meet the safety objectives described in Phase I. This information is provided in the form of safety requirements and the predicted residual risk, described in terms of severity and likelihood, for each of the hazards associated with system use. In the AMS, this is provided to support final investment decision in the Preliminary Hazard Analysis (PHA).

¹ Level of safety in this context refers to compliance with the AOV-approved ATO SMS manual, once the system under consideration is properly defined.

- **AOV Response to Phase II:** AOV will review the PHA or similar SA or proposal and provide an initial concurrence with the identified mitigations or controls and rationale for the predicted residual risk. This will not be a final approval or rejection, but rather an initial control validation step designed to tell ATO if the predicted residual risk is reasonable and the mitigations appear valid.

c. Phase III: Operational Introduction/Control Verification Phase. Provides an assessment and supporting evidence that the system or change can be introduced into the NAS and that all risk mitigations have been validated and verified. This includes the analysis of integration with existing systems, and the transition from one system to another. The review will identify how the system or change will be introduced, given known or newly developed procedures and training, or how it will be made interoperable with other adjacent and peripheral systems. In the AMS, this is a review of the System Safety Assessment Report (SSAR), typically required to support the in-service decision (ISD).

- **AOV Response to Phase III:** AOV will review the SSAR or similar SA or proposal and provide initial concurrence with the proposed controls or mitigations for initial HRHs².

d. Phase IV: Tracking and Monitoring Planning Phase. Describes how the system or change will be tracked and monitored to ensure that it will continue to meet the safety objectives described in Phase I. This plan should focus on performance monitoring, incident investigation, and hazard mitigation. AOV will not approve any HRH mitigations that do not contain a plan on how ATO intends to track and monitor the effect of system changes.

- **AOV Response to Phase IV:** AOV will review SRMDs or similar SAs with HRH and provide concurrence with ATO's tracking and monitoring plan.

e. Phase V: Request for HRH Approval. Upon receipt of a request from ATO, AOV will approve or reject controls/mitigations for initial HRHs that contain the elements described in phases I through IV, before implementation of a change into the NAS.

² AOV will not provide final approval of any HRH mitigations until all aspects of the SRM process have been completed, including the development of a plan on how ATO intends to track and monitor the effect of system changes. However, AOV concurrences along the process will not be revisited without specific data indicating that an unsafe condition exists.

6. RESOLUTION OF DIFFERENCES: The safety compliance procedures described in FAA Order 8000.86, Air Traffic Safety Oversight Compliance Process, will be used to resolve issues if, at any point; differences cannot be resolved among staff.



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