



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

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SUBJ: Air Traffic Organization Fatigue Risk Management

Fatigue Risk Management (FRM) is a vital component of the Federal Aviation Administration's (FAA) Safety Management System (SMS) and establishes the policy to define, assess, and manage fatigue-related safety risk within the National Airspace System (NAS).

A handwritten signature in black ink, appearing to read "J. Teixeira", is positioned above the printed name.

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Chapter 1. General Information

1. **Purpose of This Order.** This order establishes policy, assigns responsibility, and delegates authority for the Federal Aviation Administration (FAA) Air Traffic Organization (ATO) Safety and Technical Training and Fatigue Risk Management Team (FRMT), and also defines the elements and function of the ATO Fatigue Risk Management System (FRMS).
2. **Audience.** This order applies to all ATO personnel.
3. **Where Can I Find This Order?** This order is available on the Directives Management System website: https://employees.faa.gov/tools_resources/orders_notices/.
4. **Distribution.** This order is distributed to the following Service Units within the ATO Operations business unit: Terminal Services, En Route and Oceanic Services, System Operations Services, Technical Operations Services, and the operational support offices of Mission Support Services and Safety and Technical Training.
5. **Background.** For decades, the National Transportation Safety Board (NTSB) has investigated accidents and incidents across all modes of transportation where fatigue was a causal or contributory factor and has issued nearly 200 fatigue-related recommendations. Managing human fatigue has been on the NTSB's Most Wanted List of transportation safety improvements since the list was first created in 1990. In 2009, the Department of Transportation, Office of Inspector General, released audit results on potential fatigue factors in air traffic control, including five recommendations accepted by the FAA. In its ongoing efforts to ensure the safety of the National Airspace System (NAS), ATO established the FRMT. The FRMT provides operational fatigue risk expertise, guidance, and support to the ATO. It also develops fatigue reduction strategies and policy recommendations to mitigate and manage operational fatigue risks in the NAS.
6. **Definitions.** The following definitions apply in this order.
 - a. **Fatigue.** A physiological state of reduced mental or physical performance capability resulting from sleep loss or extended wakefulness, circadian (from Latin *circa* meaning “about” and *dies* meaning “day”) phase, or workload (mental and/or physical activity) that can impair an individual’s alertness and ability to perform safety-related duties.
 - b. **Fatigue Risk Management (FRM).** The processes used to identify, analyze, assess, monitor and manage fatigue-related risk within the NAS.
 - c. **Fatigue Risk Management System (FRMS).** A scientifically based, data-driven process and systematic method used to continuously monitor and manage fatigue risks associated with fatigue-related error.
 - d. **Fatigue Risk Management Team (FRMT).** A stand-alone office within ATO Safety and Technical Training’s Safety Directorate that provides operational fatigue risk expertise, guidance, and program management support to the ATO. The FRMT supports ATO service units with developing fatigue reduction strategies and policy recommendations to mitigate and manage operational fatigue risks in the NAS.

e. **Fatigue Safety Assurance.** The processes and procedures used to evaluate the safety of the NAS following implementation of fatigue mitigations, identify fatigue-related hazards already present in the system, and ensure safety-related fatigue mitigations are effective.

f. **Fatigue Safety Promotion.** The communication and dissemination of fatigue safety information. Fatigue safety promotion informs the ATO workforce and leadership about the science of fatigue, related operational and personal risks, personal countermeasures, operational mitigations, and fatigue-related programmatic safety initiatives.

g. **Fatigue Risk Mitigation.** A fatigue risk mitigation is designed to lessen the impact of a fatigue-related risk on the safety of the NAS. These mitigations include science and data-based activities and vehicles involving policy revisions, education and training, guidance, promotion and communications, operational practices, workforce and management tools, and other means to reduce the risk of fatigue to ATO operational and personal safety.

h. **Hazard.** Any real or potential condition that can cause injury, illness, or death to people, damage to or loss of a system, equipment, or property, or damage to the environment. A hazard is a condition that is a prerequisite to an accident or incident.

i. **National Airspace System (NAS).** A complex system that is composed of: airspace, airports, aircraft, pilots, air navigation facilities and Air Traffic Control (ATC) facilities, communications, navigation, surveillance and supporting technologies and systems, operating rules, regulations, policies and procedures, and people who implement, sustain, or operate the system components.

j. **Qualitative Data.** Subjective data that is expressed as a measure of quality; nominal data.

k. **Quality Assurance.** A program for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met.

l. **Quality Control.** Assesses the output (whether a product or service) of a particular process or function and identifies any deficiencies or problems that need to be addressed.

m. **Quantitative Data.** Objective data expressed as a quantity, number, or amount, allowing for a more rational analysis and substantiation of findings.

n. **Risk.** The composite of the severity and likelihood of the potential or current effect of a hazard.

o. **Safety Management System (SMS).** An integrated collection of processes, procedures, policies and programs that are used to assess, define, and manage the safety risk in the provision of ATC Communication, Navigation and Surveillance (CNS) services.

p. **Safety Risk Management (SRM).** The processes and practices used to assess safety risk within the NAS, document changes and define strategies for monitoring the safety risk of the NAS. SRM complements safety assurance.

q. **Safety Risk Management Document (SRMD).** A document that thoroughly describes the safety analysis for a proposed change. It records the proposed fatigue risk mitigations that introduce or

identify hazards and/or changes to the risk level in the NAS, or affect the current risk level of the NAS.

r. **Safety Risk Management Decision Memorandum (SRMDM).** A document that records proposed fatigue risk mitigations that do not introduce or identify any hazard or affect the current risk level of the NAS.

s. **Safety Risk Management Panel (SRMP).** A diverse group of representatives, stakeholders, and subject matter experts from the various organizations affected by a proposed change to the NAS. They conduct a safety analysis of the proposed change and present findings and recommendations to decision makers.

Chapter 2. Fatigue Risk Management Team (FRMT)

1. Introduction. The FRMT is a formal organizational element within ATO Safety and Technical Training's Safety Directorate. The FRMT is responsible for conducting fatigue-related data collection and analysis, identifying fatigue-related hazards, classifying areas of fatigue risk in ATO operations, and designing mitigations to reduce fatigue risk in the ATO. The FRMT conducts its activities within the ATO SMS foundational elements: safety policy, safety promotion, safety risk management, and safety assurance.

2. Fatigue Risk Management Team. The ATO FRMT supports fatigue risk management in the ATO operational environment by:

- a. Developing a fatigue research agenda and sponsoring fatigue-related research projects.
- b. Establishing fatigue reporting methods and tools.
- c. Gathering, compiling, and analyzing operational fatigue-related data.
- d. Identifying operational fatigue-related hazards.
- e. Conducting fatigue hazard analysis and developing associated safety cases in support of fatigue-related Safety Risk Management Panels (SRMPs).
- f. Providing recommendations on operational fatigue-related risk management approaches.
- g. Developing mitigation strategies to reduce operational fatigue-related risk.
- h. Managing the operation of the ATO FRMS.
- i. Identifying fatigue-related training and education needs, facilitating content development and supporting training delivery to increase awareness of fatigue-related information, policies, and procedures across the ATO.
- j. Assisting the operational service units in implementing fatigue mitigations, including measuring and monitoring performance of the mitigation for continuous improvement.
- k. Functioning as the office of primary interest for ATO operational fatigue-related issues.

Chapter 3. ATO Fatigue Risk Management System (FRMS)

1. ATO FRMS Overview. An FRMS is “a scientifically based, data-driven process and systematic method used to continuously monitor and manage fatigue-related risks associated with fatigue-related error. It employs a multi-layered defense to proactively manage operational fatigue risk.”¹ The ATO FRMS is designed and will be operated in accordance with SMS principles, practices, and policy.

The ATO FRMS is the formalized proactive approach by which the FRMT, the Fatigue Safety Steering Committee (FSSC), the ATO operational service units, and other stakeholders work together to manage fatigue risk. The FRMT is responsible for identifying fatigue-related hazards and causal factors, classifying fatigue-related risks, and recommending mitigations to reduce fatigue-related safety risk to acceptable levels. The FSSC is a collaborative fatigue-safety committee that provides an ongoing interface between ATO Safety and Technical Training and affected labor unions concerning fatigue hazards and risks across the NAS.

2. ATO FRMS Roles and Responsibilities. The following describes the FRMS-related responsibilities of the FRMT, the FSSC, and the ATO service units.

a. Vice President, ATO Safety and Technical Training.

- i. Has primary fatigue risk management responsibility within the ATO.
- ii. Receives validated fatigue-related safety cases from the FSSC for review and disposition.

b. Fatigue Risk Management Team. The FRMT operates the ATO FRMS by:

- i. Facilitating the activities of the FSSC.
- ii. Receiving and reviewing feedback from operational service units and affected labor unions on fatigue science research topics and FRMT work plans.
- iii. Collaborating with the operational service units, affected labor unions, and the fatigue science community to conduct SRMPs and define fatigue-related risk mitigation alternatives.
- iv. Recommending mitigations to reduce fatigue-related safety risk.

c. Fatigue Safety Steering Committee. The FSSC is a collaborative body that provides steering guidance for the operation of the FRMS. Responsibilities are defined in the FSSC charter and include:

- i. Identifying fatigue-related issues in the ATO operational work environment and recommending prioritization within the FRMT’s work plan.

¹ U S Department of Transportation Federal Aviation Administration Advisory Circular 120-100, *Basics of Aviation Fatigue*, June 7, 2010

- ii. Receiving and reviewing operational fatigue analysis conducted by the FRMT.
- iii. Establishing the requirement for SRMPs for identified operational fatigue hazards.
- iv. Validating fatigue safety cases and mitigation recommendations prior to disposition by the Vice President of ATO Safety and Technical Training.

d. **ATO Operational Service Units.** The ATO operational service units will participate in the ATO FRMS by:

- i. Providing subject matter expertise to analyze fatigue-related safety issues or serve on SRMPs.
- ii. Reporting fatigue-related safety concerns.
- iii. Supporting the disposition of fatigue-related recommendations.

3. **ATO FRMS Operation.** The FRMS is a formalized approach by which FRM recommendations are developed for disposition by the Vice President of ATO Safety and Technical Training. The following describes the operation of the FRMS:

a. The FRMT collects data, conducts preliminary fatigue safety analysis, identifies potential fatigue-related hazards, and presents findings to the FSSC. The FSSC validates the FRMT's findings and determines the need for additional SRM activities.

b. The FRMT leads additional SRM activities in accordance with the FAA's SMS guidance and presents the resulting fatigue safety case(s) to the FSSC in the form of a SRMDM or SRMD. The FSSC validates each fatigue safety case and associated fatigue risk mitigation recommendations or assigns further needed action.

c. The FSSC presents the validated safety case to the Vice President of ATO Safety and Technical Training for disposition.

4. **FRMS Fatigue Safety Steering Committee Administration.** The FRMT will provide support to the FSSC for the execution of its responsibilities. In this regard, the FRMT will:

- a. Facilitate and support the activities of SRMPs established by the FSSC.
- b. Support the FSSC review process of fatigue-related analyses and validation of safety cases and mitigation recommendations.
- c. Facilitate and support the FSSC meetings.
- d. Collect and prepare meeting agenda items and preparatory materials in advance of meetings.
- e. Provide a status on each element of the FRMT work plan at each FSSC meeting.
- f. Provide briefings on FRMS-related information that has been prepared for, or provided to, external oversight organizations.

g. FSSC meetings will be scheduled once per quarter, and additional meetings may be scheduled as agreed to by the FSSC members. Meeting notes will be recorded and maintained by the FRMT and distributed to FSSC members. Final meeting notes will be considered the official record of the FSSC.