[4910-13]

DEPARTMENT OF TRANSPORTATION

Federal Aviation Administration

14 CFR Parts 5, 21, 91, 119, 121, and 135

Docket No.: FAA-2021-0419; Notice No. 23-05

RIN 2120–AL60

Safety Management Systems

AGENCY: Federal Aviation Administration (FAA), Department of Transportation (DOT).

ACTION: Notice of proposed rulemaking (NPRM).

SUMMARY: The FAA proposes to update and expand the part 5 requirements for safety management systems (SMS) and require certain certificate holders and commercial air tour operators to develop and implement an SMS. This proposed rule would extend the requirement for an SMS to all certificate holders operating under the rules for commuter and on-demand operations, commercial air tour operators, production certificate (PC) holders that are holders or licensees of a type certificate (TC) for the same product, and holders of a TC who license out that TC for production. The FAA also proposes this rule in part to address a Congressional mandate as well as recommendations from the National Transportation Safety Board (NTSB) and two Aviation Rulemaking Committees (ARCs). Additionally, the proposed rule would more closely align the United States with Annex 19 to the Convention on International Civil Aviation. This proposed rule is intended to improve aviation safety by requiring organizations to implement a proactive approach to managing safety.

DATES: Send comments on or before ***[Insert date 60 days after date of publication in the Federal Register].*****ADDRESSES:** Send comments identified by docket number FAA-2021-0419 using any of the following methods:

- Federal eRulemaking Portal: Go to www.regulations.gov and follow the online instructions for sending your comments electronically.
- Mail: Send comments to Docket Operations, M-30; U.S. Department of Transportation (DOT), 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, DC 20590-0001.
- Hand Delivery or Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: Fax comments to Docket Operations at 202-493-2251.

Privacy: In accordance with 5 USC 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, including any personal information the commenter provides, to www.regulations.gov, as described in the system of records notice (DOT/ALL-14 FDMS), which can be reviewed at www.dot.gov/privacy.

Docket: Background documents or comments received may be read at www.regulations.gov at any time. Follow the online instructions for accessing the docket or go to the Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE, Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

FOR FURTHER INFORMATION CONTACT: For technical questions concerning this action, contact Scott Van Buren, Office of Accident Investigation and Prevention, AVP-4, Federal Aviation Administration, 800 Independence Avenue SW, Room 300 East, Washington, DC 20591, telephone (202) 494-8417; mail Scott.VanBuren@faa.gov.

SUPPLEMENTARY INFORMATION:

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List of Abbreviations and Acronyms Frequently Used in This Document

AC – Advisory Circular
ACSAA – Aircraft Certification and Accountability Act
ANPRM – Advance Notice of Proposed Rulemaking
ARC – Aviation Rulemaking Committee
CBI – Confidential Business Information
CFR – Code of Federal Regulations
EASA – European Union Aviation Safety Agency
FAA – Federal Aviation Administration
FOIA – Freedom of Information Act
ICAO – International Civil Aviation Organization
IRFA – Initial Regulatory Flexibility Analysis
LOA – Letter of Authorization
NAICS – North American Industry Classification System
NPRM – Notice of Proposed Rulemaking
NTSB – National Transportation Safety Board
OMB – Office of Management and Budget
PC – Production Certificate
RFA – Regulatory Flexibility Act
RIA – Regulatory Impact Analysis
SBA – Small Business Administration
SMS – Safety Management System
TC – Type Certificate
U.S.C. – United States Code

I. Executive Summary

A. Purpose of this NPRM

A safety management system (SMS) provides an organization-wide approach to identifying safety hazards, assessing, and managing safety risk, and assuring the effectiveness of safety risk controls. An SMS provides a set of decision-making processes and procedures that can improve safety by assisting an organization in planning, organizing, directing, and

controlling its aviation-related business activities. Currently, the SMS requirements of part 5 of Title 14 of the Code of Federal Regulations (CFR) apply only to air carriers certificated under part 119 and conducting operations in accordance with part 121 (part 121 operators). In this Notice of Proposed Rulemaking (NPRM), the Federal Aviation Administration (FAA) proposes to expand the applicability of the SMS requirements to include additional entities in an effort to enhance safety, respond to a Congressional mandate, and more closely align the FAA's SMS requirements with International Civil Aviation Organization (ICAO) Annex 19.

Historically, the approach to aviation safety was based on the reactive analysis of past accidents and the introduction of corrective actions to prevent the recurrence of those events. An SMS, however, helps organizations to proactively identify potential hazards in the operating environment, analyze the risks of those hazards, and mitigate those risks to prevent an accident or incident. In 2015, the FAA promulgated 14 CFR part 5, which required part 121 operators to develop and implement SMS and set out the basic requirements for those systems. The FAA believes that the next step in improving aviation safety is to extend SMS requirements to additional organizations that play a critical role in the design, manufacturing, and operation of aircraft (i.e., part 119 certificate holders operating under part 135, Letter of Authorization (LOA) holders operating commercial air tours under § 91.147, and certain certificate holders under part 21). These organizations are in the best position to prevent future incidents and accidents because they are closest to the hazards, and they know the most about their operations and products. An SMS provides a structured, repeatable, systematic approach to proactively identify hazards and manage safety risk. With implementation of an SMS, these organizations would be better able to develop and implement mitigations that are appropriate to their environment and operational structure. The FAA believes the implementation of SMS can be used to avoid or

mitigate future accidents. Representative examples of accidents that the FAA believes could be avoided can be found in sections V.G. and VII.A of this proposal. This proposal is based on the recommendations of two previous Aviation Rulemaking Committees (ARCs),[1] the National Transportation Safety Board (NTSB),[2] and the Joint Authorities Technical Review of the Boeing 737 MAX Flight Control System.[3]

Further, the Aircraft Certification Safety and Accountability Act (Public Law 116-260, 134 Stat. 2309, hereafter referred to as ACSAA), enacted on December 27, 2020, mandated the application of SMS regulatory requirements to holders of both a Type Certificate (TC) and a Production Certificate (PC) issued under part 21.[4] ACSAA further mandated that the FAA include certain requirements in its implementing regulations. The FAA proposes amendments to part 5 in accordance with this legislation.

Lastly, requiring SMS for certain commercial operators, and design and manufacturers would more closely align the FAA's SMS requirements with ICAO Annex 19; therefore, this proposed rule would increase U.S. alignment with other civil aviation authorities that are also implementing SMS requirements in accordance with ICAO Standards and Recommended Practices.[5]

B. Summary of the Proposed Rule

An SMS requires four essential components – safety policy, safety risk management, safety assurance, and safety promotion. Additionally, an SMS requires that an organization

[1] The SMS ARCs are discussed in Section IV.A.
[2] NTSB recommendations are discussed in Section IV. B.
[3] Joint Authorities Technical Review (JATR), *Boeing 737 MAX Flight Control System: Observations, Findings, and Recommendations,* Washington, October 11, 2019.
[4] Section 102(a)(1) of ACSAA.
[5] Several major civil aviation authorities have established or are in the process of establishing SMS requirements for air operators, air traffic management, airports, and maintenance organizations, including the European Union Aviation Safety Agency (EASA), Brazil, Canada, Japan, New Zealand, and Australia. Fewer countries have design and manufacturing organizations and, therefore, they have not established SMS requirements for those entities. However, New Zealand, Japan, and EASA have established SMS requirements for design and manufacturing organizations.

document the system itself and maintain any records produced under that system. In this NPRM, the FAA proposes to expand the applicability of the SMS requirements to include additional entities, add new requirements to part 5, and amend existing regulations in parts 5, 21, 91, and 119. Several of these proposed amendments respond to the statutory mandate in ACSAA.

Specifically, the FAA proposes to expand the applicability of part 5 beyond part 121 operators to include part 135 operators, § 91.147 air tour operators, and certain certificate holders under part 21. These entities would receive the greatest safety benefits of an SMS as they are best situated to prevent future incidents and aviation accidents.

In response to the statutory requirements in ACSAA, the FAA proposes to add a requirement for each SMS to include a code of ethics that applies to all employees and clarifies that safety is the highest priority. Consistent with ACSAA, the FAA also proposes to revise the existing requirement for a confidential employee reporting system by adding a provision to ensure that employees can report without concern of reprisal.

Additionally, the FAA proposes several amendments to part 5 that are intended to increase the effectiveness of SMS, including several new requirements. The FAA proposes to require organizations to develop a system description, which is a summary of aviation-related processes and activities and a description of interfacing persons that contribute to the safety of the organization's aviation-related products and services. The FAA proposes to add information that must be considered during the system analysis, which is conducted when a person applies safety risk management. Specifically, the FAA proposes to require persons to consider the interfaces of the system in conducting the system analysis. The FAA also proposes to require persons who identify hazards to notify interfacing persons who are best able to address or mitigate the hazard. To account for these new requirements, the FAA proposes conforming

amendments to the SMS documentation and recordkeeping requirements to ensure organizations document the system description and retain all communications concerning the notification of hazards to interfacing persons. Furthermore, the FAA proposes several amendments to part 5, including a revision to the definition of "hazard" to ensure it encompasses aviation incidents as well as accidents, the relocation of the definitions to the beginning of the subpart to facilitate readability of part 5, and the removal of all references to the term "certificate holder" to conform to the new applicability proposed by the rule. The FAA also proposes amendments to certain regulations in parts 21, 91, and 119 to conform with, and enable the implementation of, the proposed requirements in part 5.

The following table summarizes the proposed provisions and provides the proposed section(s) of the Federal Aviation Regulations that contains the provisions.

Table 1 provides a summary of the major provisions of this proposed rule.

Table 1. SUMMARY OF MAJOR PROVISIONS

Provision	Proposed 14 CFR § affected	Summary of Proposed Provision
Applicability of part 5	5.1, 21.55, 21.135, 21.147, 91.147, and 119.8	Expand the applicability of part 5 (currently limited to part 121 operators) to make SMS requirements applicable to part 135 operators, § 91.147 air tour operators, and certain holders of a TC[6] and PC issued under part 21 for the same product.[7]
Definition of "Hazard"	5.3[8]	Revise the definition of "hazard" to also mean conditions or objects with the potential to cause or contribute to an incident.
General Requirements	5.5(b)	Add a new requirement to develop and maintain a system description that includes information about the aviation products or services provided by the person and a description of the interfacing persons that

[6] As discussed in Section V.A.3 of the preamble, the FAA considers a licensee of a TC to be equivalent to a holder of a TC. For purposes of this table, each reference to "TC holder" or "holder of a TC" is intended to encompass "licensee of a TC." Thus, part 5 would also apply to a person who holds a PC and is a licensee of a TC for the same product.

[7] Part 5 would also apply to applicants seeking to operate under part 135 or § 91.147, and to an applicant for a PC who is the holder or licensee of a TC for the same product.

[8] The definitions and general requirements currently exist in §§ 5.5 and 5.3, respectively. The FAA proposes to relocate the definitions to § 5.3 and the general requirements to § 5.5.

		contribute to the safety of the person's products or services.
Part 121 operators	5.7(a)	Require part 121 operators to revise their current SMS in accordance with the new requirements of part 5 and to submit revisions no later than 12 months after effective date of final rule.
Applicants seeking to operate under part 121	5.7(b)	Require applicants seeking to operate under part 121 to develop and implement an SMS in accordance with part 5 and to submit a statement of compliance as part of the certification process.
Part 135 operators and § 91.147 air tour operators	5.9(a)	Require part 135 operators and § 91.147 air tour operators to develop and implement an SMS in accordance with part 5 and to submit a statement of compliance no later than 24 months after the effective date of final rule.
Applicants seeking to operate under part 135 or § 91.147	5.9(b)	Require applicants seeking to operate under part 135 or § 91.147 to develop and implement an SMS in accordance with part 5 and to submit a statement of compliance as part of the certification or LOA process.
Holders of PC and TC for the same product	5.11	Require any person that holds a PC and TC[9] issued under part 21 for the same product to develop an SMS in accordance with part 5; to submit an implementation plan for FAA approval no later than December 27, 2024; and to implement the SMS no later than December 27, 2025.
TC holders applying for a PC for same product	5.13	Require TC holders[10] who apply for a PC for the same product to develop an SMS in accordance with part 5, to submit an implementation plan for FAA approval during the certification process, and to implement the SMS no later than one year after obtaining FAA approval.
TC holders who have a licensing agreement to allow other persons to obtain a PC	5.15(b)	Require TC holders, who have a licensing agreement to allow other persons to obtain a PC, to develop an SMS in accordance with part 5; to submit an implementation plan for FAA approval no later than December 27, 2024; and to implement the SMS no later than December 27, 2025.
TC holders who enter into a licensing agreement to allow other persons to obtain a PC	5.15(c)	Require TC holders, who enter into a licensing agreement to allow other persons to obtain a PC, to develop an SMS in accordance with part 5, to submit an implementation plan for FAA approval when providing written licensing agreements to the FAA,

[9] See footnote 7.
[10] See footnote 7.

		and to implement the SMS no later than one year after obtaining FAA approval.
Implementation plans	5.17	Require implementation plans filed under §§ 5.11, 5.13, and 5.15 to include a description of how the person intends to comply with part 5, and for the person to make available, upon request, all necessary information and data that demonstrates that the SMS has been or will be implemented in accordance with the implementation plan.
Safety policy	5.21(a)(7)	Add a new requirement for the safety policy to include a code of ethics that is applicable to all employees, including management personnel and officers, which clarifies that safety is the organization's highest priority.
System analysis and hazard identification	5.53(b)(5)	Add a new requirement for the person conducting the system analysis to consider the interfaces of the system.
Safety performance monitoring and measurement	5.71(a)(7)	Revise the requirement for a confidential employee reporting system by adding a provision to ensure that employees can report without concern of reprisal.
	5.71(c)	Add a new requirement for holders of both a TC and PC for the same product to submit a summary of the confidential employee reports to the FAA every 6 months.
Notification of hazards to interfacing persons	5.94	Add a new section to: (1) require the person who identifies a hazard to notify the interfacing person who, to the best of their knowledge, could address the hazard or mitigate the risk; and (2) require procedures for reporting and receiving hazard information with interfacing persons.
SMS documentation	5.95(c)	Add a new requirement for SMS documentation to include the system description.
SMS records	5.97(d)	Add a new requirement for persons to retain records of all communications provided under new § 5.94 for a minimum of 24 consecutive calendar months.

C. Summary of Costs and Benefits

The FAA estimated quantified annualized costs of $51.3 million using a 7 percent discount rate over a 5-year period of analysis. The costs represent resources to develop and implement an SMS. Mitigation costs to reduce or eliminate any hazards identified by an SMS, which are yet to be identified and thus unknown, are not quantified in the analysis. The FAA

evaluated benefits qualitatively. The benefits are the value that would result from avoided fatalities, injuries, aircraft damage, and investigation costs. Please see Section VII. for more information.

II. Authority for this Rulemaking

The FAA's authority to issue rules on aviation safety is found in Title 49 of the United States Code (U.S.C.). Subtitle I, Section 106 describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

In 2010, Congress mandated that the FAA conduct rulemaking to require part 121 operators to implement an SMS in the Airline Safety and Federal Aviation Administration Extension Act of 2010 (Pub. L. 111-216, 124 Stat. 2366).[11]

Subsequently, Congress enacted section 102(a)(1) of the Aircraft Certification, Safety, and Accountability Act (Public Law 116-260; 134 Stat. 2309, hereafter referred to as ACSAA), on December 27, 2020. Section 102, titled "Safety Management Systems," requires the FAA to initiate a rulemaking to require manufacturers that hold both a TC and a PC issued pursuant to 49 U.S.C. 44704 have an SMS consistent with Standards and Recommended Practices established by ICAO and contained in Annex 19 to the Convention on International Civil Aviation (61 Stat. 1180), for such systems. Section 102 of ACSAA requires the implementing regulations to include a confidential employee reporting system through which employees can report hazards, issues, concerns, occurrences, and incidents, without concern for reprisal for reporting, and a code of ethics. This rulemaking proposes regulations in accordance with those requirements.

Additionally, given this clear Congressional support for SMS as a safety concept, the FAA is proposing to use its discretion under the following authorities to proactively extend SMS

[11] *See* Sec. 215(a).

requirements to part 119 certificate holders authorized to operate under part 135 and LOA holders operating under § 91.147.

This rulemaking is promulgated under the authority described in 49 U.S.C. 106(f), which establishes the authority of the Administrator to promulgate regulations and rules. This rulemaking is also promulgated under 49 U.S.C. 44701(a)(5) ("The Administrator of the Federal Aviation Administration shall promote safe flight of civil aircraft in air commerce by prescribing regulations and minimum standards for other practices, methods, and procedure the Administrator finds necessary for safety in air commerce and national security"); 44701(a)(2)(A) ("The Administrator of the Federal Aviation Administration shall promote safe flight of civil aircraft in air commerce by prescribing regulations and minimum standards in the interest of safety for inspecting, servicing, and overhauling aircraft, aircraft engines, propellers, and appliances"); 44702(a) ("The Administrator of the Federal Aviation Administration may issue airman certificates, design organization certificates, type certificates, production certificates, airworthiness certificates, air carrier operating certificates, airport operating certificates, air agency certificates, and air navigation facility certificates"); and 44704(a)(1) ("The Administrator of the Federal Aviation Administration shall issue a type certificate for an aircraft, aircraft engine, or propeller, or for an appliance specified under paragraph (2)(A) of this subsection when the Administrator finds that the aircraft, aircraft engine, propeller, or appliance is properly designed and manufactured, performs properly, and meets the regulations and minimum standards"). Additionally, this rulemaking is consistent with the requirements of 49 U.S.C. 44701(d)(1)(A) ("When prescribing a regulation or standard under [49 U.S.C. chapter 447], the Administrator shall consider the duty of an air carrier to provide service with the highest possible degree of safety in the public interest.").

Finally, 49 U.S.C. 44701(c) directs the Administrator to "carry out this chapter in a way that best tends to reduce or eliminate the possibility or recurrence of accidents in air transportation." This rulemaking is intended to require certain entities that are regulated under the foregoing statutory authorities to develop and maintain an SMS to improve the safety of their operations. The development and implementation of SMS may enhance safety in air transportation and design and manufacturing so that persons can proactively identify and mitigate safety hazards, thereby reducing the possibility or recurrence of accidents in air transportation consistent with the mandate in § 44701(c). For these reasons, the proposed regulations are within the scope of the FAA's authority and are consistent with Congress's mandate that the FAA exercise its authority to proactively – not just reactively – promote safe flight of civil aircraft and to reduce or eliminate hazards that could result in accidents in air transportation.

III. Purpose of this Rulemaking

An SMS is a formal, top-down, organization-wide approach to managing safety risk and ensuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk. An SMS is a management system integrated into an organization's operations that enforces the concept that safety should be managed with as much emphasis, commitment, and focus as any other critical area of an organization.

The purpose of an SMS is to reduce incidents, accidents, and fatalities by aiding organizations in identifying hazards and mitigating those hazards before they lead to an incident or accident. Anecdotal evidence from SMS voluntary program participants indicates that SMS

improves the safety of organizations.[12] Although the authors of a 2012 study by the Australian Transport Safety Board acknowledged the prevalence of earlier studies that were inconclusive, they ultimately concluded that "recent studies have demonstrated that well-implemented SMS, especially those where the organisation invests effort into the SMS, are associated with enhanced safety performance."[13] Research by Tinsley, Dillon, and Madsen[14] suggests that the attention an SMS would bring to seemingly smaller events, or near accidents, could prevent catastrophes. Tinsley, Dillon, and Madsen studied near accidents in dozens of companies across industries and in laboratory simulations. They determined that multiple near accidents preceded and foreshadowed every disaster and business crisis they studied, and that most near accidents were ignored. The authors found that identifying near accidents and correcting root causes are good investments for an organization. Similarly, in examining large U.S. commercial airlines that operated from 1990 to 2007, Madsen, Dillon, and Tinsley[15] found that for airlines to continue to improve safety they must attend to the yet undiscovered or unrecognized risks in the system without waiting for an accident to bring attention to them. Additionally, the FAA contends that expanding the implementation of SMS in the aviation industry would increase overall safety for each entity using an SMS, as well as requiring communication across the aviation industry with respect to identified hazards.

The FAA previously forecasted a reduction in fatalities as a result of implementing SMS for part 121 certificate holders.[16] The FAA still expects an overall reduction in fatalities,

[12] As described in the Regulatory Impact Analysis for the rule, for example, one participant noted that the compressed executive awareness time of new safety related issues resulted in formal management actions occurring in less than 90 days for low-risk issues and within hours for high-risk issues. Another participant noted that they have a seen a substantial drop in the major risk categories that they track.
[13] Thomas, Dr. Matthew J.W.; *A Systematic Review of the Effectiveness of Safety Management Systems*, Australian Transport Safety Bureau, 2012, p. 27. https://www.atsb.gov.au/sites/default/files/media/4053559/xr2011002_final.pdf
[14] Tinsley, Catherine H. et al., *How to Avoid Catastrophe.* Harvard Business Review, Brighton, 2011. https://hbr.org/2011/04/how-to-avoid-catastrophe.
[15] Madsen, Peter et al., *Airline Safety Improvement Through Experience with Near-Misses: A Cautionary Tale*. Risk Analysis, May 2016, Vol. 36, No. 5.
[16] See Section V (Regulatory Notices and Analysis) starting on page 1318 of 14 CFR part 5 final rule published January 8, 2015, 80 FR 1308.

however quantifying the effects of part 5 requirements on part 121 certificate holders cannot be done at this time due to inadequate data. The data available for 2020 and 2021 is both significantly reduced and atypical due to the COVID-19 pandemic.

Over the last few decades, accidents involving commercial aviation operators have decreased.[17] Despite an overall reduction in accidents, the FAA has determined that many of the accidents involving part 135 and § 91.147 operators could have been effectively mitigated by the presence of an SMS. These accidents highlight the systemic improvement opportunities to safety as described in the Regulatory Impact Analysis (RIA) for this rulemaking. According to NTSB data, from 2015 to 2019, there were 215 accidents involving part 135 operators, with a total of 121 fatalities,[18] as well as 33 accidents involving air tour operators operating under § 91.147, with a total of 16 fatalities.[19] The FAA identified 35 of these accidents involving part 135 operators and four accidents involving § 91.147 operators which involved fatalities and serious injuries that could have been mitigated had those operators implemented an SMS. Additional accidents not involving fatalities or serious injuries may also have been avoided. The FAA also identified several accidents across parts 91, 121, and 135 involving design and production issues that resulted in fatalities and serious injuries that could have been mitigated or prevented if the design and manufacturing organizations involved had implemented an SMS.[20] A full listing of each accident used to inform the analysis of this rulemaking (including a brief description of the accident, a quantified estimate of the probability of mitigation through the adoption of SMS, and a rationale for estimated probability) is included in Appendix A to the RIA.

[17] U.S. Air Carrier Safety Data, https://www.bts.gov/content/us-air-carrier-safety-data. Accessed March 22, 2022.
[18] National Transportation Safety Board. US Civil Aviation Accident Rates. 2022. Available at: https://www.ntsb.gov/safety/Pages/research.aspx.
[19] Data file of sightseeing accidents provided by the NTSB April 2020.
[20] These accidents include those identified by NTSB accident numbers: DCA19MA086, ERA18LA199, DCA18MA142, ERA18FA120, DCA17FA021, WPR16FA153, DCA16FA199, ERA16FA185, WPR16FA055, DCA16FA013, CEN15MA290, ERA15FA254, and DCA15FA073.

Given the rapid development, growth, and increasing complexities of the airspace, the FAA believes that SMS requirements should extend to parties that play a critical role in the design, manufacturing, and operation of aircraft. ACSAA requires the FAA to include holders of both a TC and a PC among those organizations that should be required to implement an SMS. Applying SMS to commuter and on-demand air carriers, air tours, and the manufacturers responsible for design and production of products would continue to reduce incidents, accidents, and fatalities and improve safety in aviation by requiring these organizations to proactively identify hazards, assess risk of those hazards, and develop and implement mitigations, as necessary. The FAA anticipates that this systemic safety effort will have a measurable effect on the reduction in fatalities as described in the RIA for this rulemaking. ICAO, other civil aviation authorities, industry advisory groups, and the NTSB all agree that the use of an SMS improves safety. An SMS has been implemented by each part 121 operator, and many other organizations have implemented an SMS following the FAA's SMS Voluntary Program. The FAA has also implemented SMS within many of its own organizations. The FAA's own experience has shown that organizations that have an SMS may:

- Increase safety of products or services by identifying and addressing problems before they occur.
- Improve data-informed decision making to prioritize resource allocation.
- Enhance communication regarding safety by using common, consistent terminology within the organization and throughout the industry.
- Strengthen the organization's safety culture.

Further, expansion of the SMS requirements would increase U.S. alignment with other civil aviation authorities that are also implementing SMS requirements in accordance with ICAO

Standards and Recommended Practices. With an SMS, a U.S. company would have an improved ability to operate internationally due to better alignment with ICAO standards and recommended practices. Furthermore, a U.S. company without an SMS could even be barred from doing business in a country where the civil aviation authority requires them to have an SMS.

To date, SMS requirements have mainly focused on internal identification and mitigation of risk within an organization. However, the FAA is proposing to augment these requirements to encourage a more collaborative approach in which persons required to have an SMS share hazard information with each other and work together to identify and address hazards and safety issues. To enable this more collaborative approach, this proposal includes requirements to share hazard information with other organizations, which are intended to ensure that relevant information is shared with the person in the best position to address the hazard. The expanded applicability and hazard information sharing among interfacing organizations would enable a network of organizations working collaboratively to manage risk, thereby enhancing the safety benefits of SMS by assuring that hazards are communicated and mitigated effectively.

IV. Background

A. SMS Aviation Rulemaking Committees

The FAA chartered two ARCs composed of industry stakeholders to provide advice on implementing SMS in aviation regulations, including parts 21, 91, 121, 125, 135, 141, 142, and 145. The industry stakeholders on these ARCs included individual companies and associations representing operators, design and manufacturing organizations, repair stations, and training organizations. These ARCs expressed industry support for SMS and recommended that the FAA publish rules requiring use of SMS.

1. SMS ARC (2009)

On February 12, 2009, the FAA chartered the SMS ARC with membership from across the aviation industry to evaluate the public comments submitted in response to an Advance Notice of Proposed Rulemaking (ANPRM) on potential rulemaking requiring certain part 21, 119, 121, 125, 135, 141, 142, and 145 certificate holders to develop an SMS[21] and provide its recommendations regarding further action the agency should consider in developing and implementing SMS requirements.[22]

In its report, the ARC recommended the FAA issue regulations on SMS and that those regulations apply to certificate holders under 14 CFR parts 21, 119, 121, 125, 135, 141, 142, and 145, as well as operators under 14 CFR part 91 subpart K. This broad applicability would more closely align with ICAO Standards and Recommended Practices. The ARC, however, recommended phased promulgation of SMS regulations and that the FAA prioritize new SMS regulations based on the potential safety benefit, as well as industry experience and regulatory oversight readiness. The FAA addressed these recommendations by first focusing on part 121 by promulgating 14 CFR part 5 on January 8, 2015 and proposing a rule to require airports certificated under part 139 to implement an SMS. Although the SMS requirements in part 5 currently apply only to part 121 operators, the FAA explained in that rulemaking that part 5 was designed for broader application and the FAA intended for the SMS requirements to apply to other FAA-regulated entities in the future.[23] The rulemakings implementing SMS for part 121 operators and airports certificated under part 139 are addressed in more detail in Section IV.C. of this NPRM preamble.

[21] 74 FR 36414, July 23, 2009.
[22] Safety Management System (SMS) Aviation Rulemaking Committee; Order 1110.152, Washington, D.C. Available at: https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/SMSARC-2122009.pdf (as of March 15, 2022).
[23] NPRM, "Safety Management Systems for Part 121 Certificate Holders," 75 FR 68224, 68232 (November 5, 2010).

When considering this proposed rule, the FAA explored applying part 5 SMS requirements to additional certificate holders and operators consistent with the ARC recommendations, as well as any certificate holders and operators required by ICAO Standards and Recommended Practices in ICAO Annex 19 (i.e., parts 21, 135, 141, 142, 145, and some operators under part 91). However, in this proposed rule the FAA is choosing to address the most impactful parts to which ICAO Annex 19 is applicable (part 135 [operators], part 21 [design and manufacturing], and § 91.147 [air tours]).

The ARC also recommended that the FAA provide additional protections for SMS safety information and proprietary data. As discussed in more detail in Section V.H., the FAA has addressed data protection in this proposal.

The ARC recommended alignment with the SMS framework developed by ICAO in Annex 19, which would facilitate SMS requirement compatibility with States actively engaged in developing and adopting their own SMS requirements. The FAA designed part 5 consistent with this recommendation.

The ARC recommended that the FAA recognize existing systems and processes. For instance, some operators have systems for internal auditing, employee reporting, and revising manuals, which could be leveraged in the development of their SMS. The FAA is incorporating this recommendation in this proposed rule by encouraging certificate holders and LOA holders to leverage their existing systems and processes to meet the requirements. In addition, the FAA is proposing guidance material that describes how existing systems and processes may align with SMS requirements.

Further, the ARC expressed concern regarding the potential impact of SMS requirements on small businesses. The FAA addressed this concern. Just as existing part 5 requirements are

performance-based and scalable, each revision proposed in this NPRM is also intended to be scalable. Scalability is discussed further in Section V.F. of this NPRM preamble. In addition, the proposed guidance accompanying this NPRM should assist certificate holders in appropriately scaling the implementation of SMS to fit their operations. The guidance material is discussed further in Section VI. of this preamble.

2. Part 21 SMS ARC (2012)

The Part 21 SMS ARC, established on October 5, 2012,[24] evaluated improvements to the effectiveness and efficiency of existing "certification procedures for products and parts," and the benefits of incorporating SMS in the design and manufacturing environment. The FAA received the ARC's final report in October 2014.[25]

The ARC recommended establishing regulatory requirements for implementing SMS for design and production approval organizations that would be consistent with the part 5 requirements.[26] The ARC recommended that SMS requirements apply to organizations that design or manufacture products (under a TC or a PC) and to those that design or manufacture articles (under a technical standard order authorization or parts manufacturer approval), or that make changes to products (under a supplemental type certificate) that could directly prevent continued safe flight and landing if they fail.[27]

The FAA analyzed the ARC's recommendation and developed an alternative (see Alternative 1 in Section VII.A.5.) to the current proposal that may have met the intent of the ARC's recommendation by extending SMS requirements beyond holders of both a TC and a PC

[24] 14 CFR 21/Safety Management Systems Aviation Rulemaking Committee Charter. Available at: https://www.faa.gov/regulations_policies/rulemaking/committees/documents/media/Part21ARC-10052012.pdf (visited March 15, 2022).
[25] Part 21/Safety Management Systems (SMS) Aviation Rulemaking Committee to the Federal Aviation Administration: Recommendations on Certification Procedures for Products and Parts. October 5, 2014.
[26] At the time the ARC submitted its final report in 2014, the FAA had not finalized the proposed part 5 requirements. Part 5 became effective March 9, 2015.
[27] Part 21/Safety Management Systems (SMS) Aviation Rulemaking Committee to the Federal Aviation Administration: Recommendations on Certification Procedures for Products and Parts, page 31. October 5, 2014.

for the same product. This alternative would require SMS for design and production approval holders who design or produce products typically used for compensation or hire with some exceptions (described in Alternative 1 in Section VII.A.5.). As part of this alternative, the FAA considered permitting design and production approval holders to apply to be excluded from part 5 requirements if the failure of the article or product alteration would have little or no impact on the continued safe flight and landing of the aircraft. After analyzing the costs and benefits, the FAA determined that there were costs to including these design and production approval holders, but was unable to estimate the magnitude of benefits. The analysis of this alternative is provided in Section VII.A.5. As a result, the FAA is not proposing to adopt the full scope of the ARC's recommendation in this NPRM at this time.

B. National Transportation Safety Board Recommendations

The NTSB first recommended in 1997 that transportation organizations implement an SMS, and early recommendations were aimed at improving safety in the maritime industry. Since then, a number of NTSB investigations related to various modes of transportation, including aviation, have cited organizational factors contributing to accidents and have recommended SMS as a way to prevent future accidents and improve safety. The NTSB issued 18 recommendations regarding SMS for aviation organizations over a 15-year period, spanning 2007 through 2021.[28] These recommendations covered commercial operations under 14 CFR parts 121 and 135, revenue passenger carrying business operations under part 91, and certificate holders under part 21. Eight of the 18 NTSB recommendations were issued to the FAA.[29]

[28] NTSB Safety recommendations: A-07-010 (2007), A-09-016 (2009), A-09-089 (2009), A-09-098 (2009), A-09-106 (2009), A-12-062 (2012), A-12-063 (2012), A-14-105 (2014), A-14-106 (2014), A-16-036 (2016), A-19-028 (2020), A-19-036 (2019), A-19-038 (2019), A-20-025 (2020), A-21-007 (2021), A-21-013 (2021), A-21-014 (2021), and A-21-048 (2021).

[29] NTSB Safety recommendations: A-07-010 (2007), A-09-089 (2009), A-09-016 (2009), A-16-036 (2016), A-19-028 (2020), A-21-013 (2021), A-21-014 (2021), and A-21-048 (2021).

The NTSB regularly publishes a Most Wanted List, which "highlights transportation safety improvements needed now to prevent accidents, reduce injuries, and save lives."[30] The NTSB 2021-2022 Most Wanted List recommended that the FAA, "Require and Verify the Effectiveness of Safety Management Systems in all Revenue Passenger-Carrying Aviation Operations."[31]

C. Safety Management System Rulemaking Efforts

1. Safety Management Systems for Domestic, Flag, and Supplemental Operations

On July 23, 2009, the FAA published an ANPRM to solicit public comments on whether certain 14 CFR part 21, 119, 121, 125, 135, 141, 142, and 145 certificate holders, product manufacturers, applicants, and employers (product/service providers) should be required to develop an SMS.[32] Subsequently, on August 1, 2010, Congress enacted the Airline Safety and Federal Aviation Administration Extension Act of 2010 (Pub. L. 111-216, 124 Stat. 2366), which directed the FAA to conduct rulemaking to "require all part 121 air carriers to implement a safety management system."[33] To meet the rulemaking deadlines mandated by the Act, the FAA decided not to immediately address SMS for other product/service providers.[34] The FAA limited the SMS rulemaking project to part 121 air carriers, issuing an NPRM on November 5, 2010, [35] and subsequently withdrawing the ANPRM.[36]

On January 8, 2015, the FAA published the Safety Management Systems for Domestic, Flag, and Supplemental Operations Certificate Holders final rule (SMS for part 121 final rule)

[30] 2021-2022 NTSB Most Wanted List of Transportation Safety Improvements, www.ntsb.gov/mwl
[31] 2021-2022, NTSB Most Wanted List of Transportation Safety Improvements, Require and Verify the Effectiveness of Safety Management Systems in all Revenue Passenger-Carrying Aviation Operations, https://www.ntsb.gov/Advocacy/mwl/Pages/mwl-21-22/mwl-as-01.aspx
[32] ANPRM, "Safety Management Systems," 74 FR 36414. July 23, 2009.
[33] *See* Sec. 215(a).
[34] *See* "Safety Management System; Withdrawal," 76 FR 14592. March 17, 2011.
[35] 75 FR 68224.
[36] *See id*.

requiring operators authorized to conduct operations under part 121 to develop and implement an SMS to improve the safety of their aviation related activities.[37] The final rule added part 5 to Title 14 of the CFR, creating the SMS requirements for part 121 certificate holders, modeled on the ICAO SMS framework in ICAO Annex 19 and consistent with the 2009 ARC recommendations. The requirements in part 5 were meant to be applicable to organizations of various sizes and complexities, as well as adaptable to fit the different types of organizations in the air transportation system and operations within an individual company. The final rule also modified 14 CFR part 119 to specify applicability and implementation of the new SMS framework in part 5 for part 119 certificate holders authorized to conduct operations under part 121. Part 121 operators met the requirement to have an SMS acceptable to the FAA by 2018. The FAA has seen continuous improvement in 121 operators' use of SMS to manage the safety of their operations and, therefore, is proposing to expand part 5 applicability with this rulemaking.

2. Safety Management Systems for part 139 Airports

On July 14, 2016, the FAA published the "Safety Management System for Certificated Airports" supplemental notice of proposed rulemaking [(81 FR 45872)] (Airports SMS SNPRM). The Airports SMS SNPRM proposed to require airports that meet certain criteria to develop and implement an SMS in the airport's movement and non-movement areas. The FAA is working to finalize that rule.

D. Aircraft Certification, Safety, and Accountability Act

The Lion Air and Ethiopian Airlines accidents involving the Boeing 737 MAX resulted in several investigations, not only of the accidents, but also of the FAA's oversight and

[37] 80 FR 1308. The FAA published technical amendments on January 13, 2015 (80 FR 1584) and May 25, 2017 (82 FR 24009) to correct a date and a reference in the rule, respectively.

certification processes. One such investigation, convened by the FAA in April of 2019, was the Boeing 737 MAX Flight Control System Joint Authorities Technical Review. The Joint Authorities Technical Review included representatives from the National Aeronautics and Space Administration, the FAA, and several foreign civil aviation authorities. One of the Joint Authorities Technical Review recommendations was that the FAA encourage applicants to have a system safety function, such as a safety management system, that is independent from their design organization.[38]

Subsequently, on December 27, 2020, Congress enacted ACSAA, which set forth a variety of reforms intended to address certain safety standards relating to the aircraft certification process. Section 102 of ACSAA requires that the FAA promulgate rules to require holders of both a TC and a PC issued under 14 CFR part 21 to implement an SMS. ACSAA also establishes a timeline for those certificate holders to adopt an SMS (i.e., no later than four years after the date of enactment, December 27, 2024), and it establishes certain requirements for the rulemaking, including a confidential employee reporting system through which employees can report hazards, issues, concerns, occurrences, and incidents without concern for reprisal for reporting, and a code of ethics.

E. International Movement Toward SMS

ICAO Annex 19, Safety Management, establishes a framework for member States to develop and implement SMS requirements within their State's rules. Several member States, including the U.S., started developing and implementing SMS requirements within their countries after Annex 19 First Edition was published in July 2013 and became applicable in

[38] Joint Authorities Technical Review (JATR), *Boeing 737 MAX Flight Control System: Observations, Findings, and Recommendations*. October 11, 2019.

November 2013.[39] Annex 19 currently requires States to establish requirements for SMS for international commercial air transportation, design and manufacturing, maintenance, air traffic services, training organizations, and certified aerodromes, as well as SMS criteria for international general aviation operators of large or turbojet airplanes.

Member States continue to make progress in developing, implementing, and maintaining requirements for SMS that are aligned with ICAO's SMS standards and recommended practices, including certificating authorities in Canada, Brazil, the United Kingdom, Japan, Australia, and Europe (European Union Aviation Safety Agency (EASA)). In the EASA regulatory framework, SMS is mandatory for certificated operators of airplanes and helicopters authorized to conduct commercial air transportation. Additionally, as a result of recent EASA rulemaking efforts, SMS will also be applicable for continuing airworthiness of an aircraft and its components. The EASA also adopted a rule for design and production organizations (part 21), which will become applicable on March 7, 2023.[40]

FAA also notes that other civil aviation authorities and interested parties are initiating evaluations to determine the effects of SMS post implementation. Two evaluations of note are discussed as follows.

In 2019 Transport Canada Civil Aviation published an evaluation of the impact of SMS on aviation safety 10 years after it was mandated for airline operators, private operators, approved maintenance organizations that service airline operator aircraft, air navigation services, and aerodromes/airports/heliports.[41] The evaluation findings were based on multiple lines of evidence, including a survey of nearly 1800 aviation industry stakeholders (operators, approved

[39] The Second Edition of Annex 19 was published in July 2016 and became applicable in November 2019.
[40] European Union Aviation Safety Agency Commission Implementing Regulation (EU) 2022/203 of 14 February 2022.
[41] Evaluation of Safety Management Systems in Civil Aviation - Transport Canada, July 2019. Available at: https://tc.canada.ca/sites/default/files/2021-02/evaluation-safety-management-systems-civil-aviation.pdf.

maintenance organizations, aerodromes), case studies involving eight enterprises and interviews. The evaluation found that many organizations have implemented policies and practices associated with an effective SMS, specifically, non-punitive reporting, executive commitment and hazard identification and mitigation. The evaluation found notable buy-in to SMS among those surveyed. Although accident trends declined over the 10-year evaluation period it was also noted that a lack of objective data limited ability to show safety improvement directly attributable to SMS because of the difficulty in separating other effects that may also benefit safety.

A Griffith University (Queensland Australia) doctoral thesis paper evaluated the impact of SMSs on safety performance for commercial aviation operations using two case studies.[42] Legislation in Australia for the implementation of an SMS for regular public transport Air Operator Certificate holders was mandated by the Civil Aviation Safety Authority in 2009 with phased implementation to be complete by 2011.

The first case study examined SMSs in the international general aviation and charter operation sector while the second case study reviewed SMSs in the Australian airline sector. In the first case study, researchers conducted an analysis of de-identified Flight Safety Foundation general aviation and charter sector audit findings. A total of 7,625 audit findings were reviewed from 2011–2014 from a population of 117 operators. The determination of safety performance was not possible for this sample population using a conventional accident rate metric due to the lack of availability of flight departure data. However, the study concluded that safety performance had improved since SMS implementation, showing a uniform decrease in the number of negative audit findings. Although the study did not control for the number and

[42] The Impact of Safety Management Systems on Safety Performance: Commercial Aviation Operations - Griffith University thesis paper. April 2015. Available at: https://research-repository.griffith.edu.au/handle/10072/367145.

thoroughness of audits performed during the years under study, the study did present qualitative findings by year and discipline, independent of the number of audits conducted. The study further concluded that a decrease in findings for the last two years of the study were likely due to the improvements brought about by growing and maturing safety management systems.[43]

In the second case study, researchers conducted a review of airline SMSs in Australia by comparison of Civil Aviation Safety Authority safety audit indicators for the sampled population before and after the implementation of SMS. The study concluded that the empirical evidence indicates that SMSs improve the safety performance of commercial aviation operations. The study also showed that SMS safety assurance plays the most critical role in an effective SMS; its associated subcomponents of continuous improvement, safety performance monitoring and measurement, and management of change have the highest net influence of all the SMS components. FAA notes that the Griffith University study conclusions and multiple correlation analyses are based on a short timeframe (three years of fully implemented SMS) and study of longer timeframes involving more mature SMSs is desirable.

V. Discussion of the Proposal

The FAA proposes changes to part 5 to further the safety of flights for compensation or hire and passenger carrying operations. To that end, the FAA considers that overall aerospace system safety would be increased by requiring entities beyond part 121 operators to implement SMS, including other operators that fly for compensation or hire and the designers and manufacturers of products used in the system. The FAA envisions these safety management systems to be scalable to the size and complexity of the organization, and to not be unduly burdensome. By requiring entities that span the disparate sectors of aviation from manufacturing

[43] Yeun, Richard Chee Kin, *The Impact of Safety Management Systems on Safety Performance: Commercial Aviation Operations*, PhD Thesis (Queensland Australia: Griffith University, 2015), See table 6.5, pp 122-123. https://hdl.handle.net/10072/367145.

and design to operations to implement an SMS, the FAA seeks to create a network of organizations that speak the same language of safety management and can better communicate with one another and share information about any hazards they identify during the course of their business. Although some part 121 operators may communicate with one another voluntarily at this time, the FAA considers that there would be greater safety benefit if all aviation organizations, from the manufacturer to the operator, were to communicate hazard information to one another. The FAA considers that the benefits of safety management systems are derived from each of the components of an SMS and that the proposed changes to part 5 would assist in maximizing the potential of an SMS to increase safety across the aerospace system.

A. Applicability

Part 5 currently applies only to persons authorized to conduct operations under part 121. The FAA proposes to amend § 5.1 and expand the applicability of part 5 to: (1) any person authorized or applying to conduct operations under part 135 or § 91.147; (2) any person that holds or applies for a PC issued under part 21 for a product for which they are the TC holder or licensee; and (3) TC holders who license the TC for production.

Although the FAA recognizes the value of the variety of voluntary safety programs, their optional nature and lack of comprehensive application of all elements of part 5 may not yield as much safety benefit as a mandatory SMS that complies with all proposed requirements of part 5. Therefore, to ensure that the minimum standard is met, the FAA is proposing to broaden the application of part 5 SMS requirements.

1. Part 135 Operators

As described in Section III, the FAA identified a number of accidents involving part 135 operators which resulted in fatalities and serious injuries that could have been mitigated through

SMS. These accidents involved both passenger-carrying and cargo-only operations. Each of these accidents stemmed from different circumstances; however, the accidents analyzed were a representative cross section of the overall circumstances that were present in the balance of total part 135 accidents that occurred. Therefore, the FAA considers that an SMS would have been effective in similar accidents among those not analyzed.

The FAA proposes to require all part 119 certificate holders authorized to operate under part 135 and applicants for those certificates to develop and implement an SMS that meets the part 5 requirements. This aligns the proposed part 5 applicability with ICAO Annex 19 and with other civil aviation authorities that generally do not differentiate between size and complexity of air carriers. SMS is necessary for safety of air transportation generally because anyone who engages in air transportation must understand the hazards associated with their operation, effectively assess the risks, and understand how to mitigate those risks. The identification of hazards through SMS may include analyzing the potential risk associated with crewmember fatigue when compounded by variations in individual 135 operations, such as scheduling variances, frequency of operations, distance, and number of pilots.[44]

The FAA considered excluding part 135 operators who use only one pilot-in-command in their operations from the SMS requirements. Approximately 31 percent (594) of the part 135 operators use one pilot-in-command. These operators have between 1 and 7 aircraft. Similar to most part 135 operators, these operators might also meet the size standard for small businesses (see Section VII.B for details). However, as all part 135 operators conduct air transportation of passengers and cargo, the FAA determined such exclusion would not be in the interest of safety

[44] See report from the Part 135 Pilot and Duty Rules Aviation Rulemaking Committee dated July 2, 2021, a copy of which has been placed in the docket for this rule.

as evidenced by the part 135 accidents discussed in Section III that could have been mitigated through an SMS (including those involving only one pilot-in-command).

As a fundamental matter, the flying public expects safe carriage from operators offering flight services for hire. Irrespective of whether an operator employs one pilot or a thousand, that company has the same responsibility to conduct safe operations. Part 135 operators employing just a single pilot are not immune to accident or serious injury; the FAA's review of NTSB reports from 2015 to 2020 showed that part 135 operators employing just a single pilot were involved in five accidents involving a fatality or serious injury. This record demonstrates that very small and single pilot part 135 operators continue to face insufficiently addressed safety hazards that cause the loss of life. More importantly, the FAA concluded that these operators could have used basic components of SMS, such as establishing safety policies, performing safety risk management to assess risk and develop controls, and using safety assurance to verify risk control effectiveness to address hazards that contributed to these accidents. These SMS elements, which require the operator to proactively monitor its practices, procedures, and how it makes decisions, are especially important for small organizations Small organizations by definition have fewer people and, as a result, have fewer opportunities for checks and balances on decisions that can affect safety. SMS addresses this by requiring small operators to create a structure for proactively monitoring their decision-making processes and addressing deficiencies. Very small operators may implement SMS requirements differently than larger operators. For example, with respect to § 5.93, small operators will have fewer employees to communicate with than large operators where personnel may have a more narrow set of responsibilities and less awareness of all operations. At one end of the spectrum, a one-person operator would have a system for documenting their own hazard information, actions, mitigations, safety performance,

etc. for future reference. At the other end of the spectrum, a large organization would have a system capable of documenting and sharing information with larger groups of people. In particular, certain aspects of SMS such as developing more routine expectations for monitoring and responding to hazards may be particularly beneficial for smaller operators. The FAA requests comment regarding how SMS might present unique opportunities or challenges for smaller organizations.

The five accidents involving single-pilot part 135 operators between 2015 and 2020 resulted in 5 fatalities and 4 serious injuries.[45] Appendix A of the RIA describes how SMS could help avoid similar accidents in the future. The following discussion describes three of those accidents and identifies how having an SMS could have addressed the hazards contributing to the accidents. In each of these cases, if the operator had invested in an appropriately scaled SMS program on the front end, it could have avoided property damage, injury, and loss of life on the back end.

According to the NTSB, the probable cause of accident CEN18FA215 was the pilot's decision to fly over the river at a low altitude and his failure to maintain clearance with wires during low-level flight. The FAA examined the effect SMS would be expected to have on this accident and determined that SMS would have enabled the operator to identify hazards along waterways. As a result of conducting safety risk management (§§ 5.51 – 5.55) the organization would develop a safety risk control that would help prevent the accident from occurring. Specifically, the risk control might have established a minimum altitude above known or presumed obstructions (§ 5.55(c)). The operator might have also established a policy or control that whenever the pilot is operating around wires, the pilot would mark the location of the wires

[45] NTSB accident numbers: CEN18FA215, ANC18LA046, ANC16FA017, ANC17TA015, and CEN17FA100.

on a map. This risk control would have helped to mitigate the risk of the pilot inadvertently flying into the wires because these additional controls would help to ensure the pilot's situational awareness regarding the location of the wires in relation to the aircraft. In this case, the pilot would monitor the safety performance (§ 5.71), by validating the location of the wires on the map and updating the information as appropriate. This is one way that the operator could verify that risk controls were appropriately applied and effective. In a small organization the operator could communicate (§ 5.93) the control to others in the organization face-to-face, via email, or other methods that the company regularly uses to communicate with its employees.

The probable cause of accident ANC18LA046 was the pilot's selection of an unsuitable takeoff area with unfavorable wind conditions, which resulted in the airplane's inability to maintain a climb. The FAA determined that the effect SMS would have had on this accident was similar to that of accident CEN18FA215. In this case, had the operator conducted safety risk management (§§ 5.51 – 5.55), it would likely have developed risk controls to ensure safer operations (§ 5.55(c)). For example, the operator could establish tools for a go/no-go decision customized for its operations. This could include special procedures specific to the environment or operations. Another risk control might be establishing procedures to ensure that the equipment is appropriate for the environment. Both of these controls would be documented using standard information tools already in use within the company. Conducting safety risk management could have included identifying and evaluating company approved unimproved landing areas to include ingress/egress routes and minimum acceptable weather performance limits could mitigate these hazards. In this case, safety performance monitoring (§ 5.71) might include periodic review of operations in non-standard environments to ensure that the controls provide the intended effect. Similar to the previous example, the operator could communicate (§ 5.93)

the control to others in the organization face-to-face, via email, or other methods that the company regularly uses to communicate with its employees.

The probable cause of accident ANC16FA017 was the pilot's inadvertent turn toward terrain that was higher-than-expected while trying to avoid poor visibility conditions and his subsequent attempt to clear terrain, which reduced the airspeed and led to the exceedance of the airplane's critical angle of attack and an aerodynamic stall and spin was the probable cause of accident. The FAA determined that SMS would have had an effect on this accident. In this case, with an SMS, the operator would have conducted safety risk management (§§ 5.51 – 5.55), and it would likely have identified hazards with low visibility hazards and mountainous terrain. The operator might develop safety risk controls regarding route suitability (§ 5.55(c)). These risk controls could include setting higher alternative weather minimums and selection of alternative routes that are consistent with the aircraft's performance, along with training to support these risk controls. The operator would also monitor its safety performance (§ 5.71), by validating that the higher alternative weather minimums and alternative routes are appropriate mitigations. Similar to other examples, the operator could communicate (§ 5.93) the control to others in the organization face-to-face, via email, or other methods that the company regularly uses to communicate with its employees.

In addition to addressing risk in this segment of the part 135 population, the FAA considers that a part 119 certificate holder authorized to operate under part 135 with only one pilot-in-command receives the same privileges and authorization as any other size or complexity part 119 certificate holder authorized to operate under part 135, and should therefore be subject to the same requirements with regard to SMS. The FAA recognizes that the implementation of part 5 requirements, applicable to all part 135 operators, must remain scalable to the size and

complexity of the organization. (For more information regarding scalability, please refer to Section V.F.).

Some part 119 certificate holders may be authorized to operate under both parts 121 and 135. The proposal would extend the SMS requirements to operations conducted by those combination certificate holders authorized to operate under both parts 121 and 135. Certificate holders that already have an SMS in place for only their part 121 operations would have to implement SMS for their part 135 operation.

2. Section 91.147 Letter of Authorization Holders

The FAA is proposing to extend the SMS requirements to all holders and applicants of LOAs issued under § 91.147 to enhance the safety of commercial air tour operations. Most operations for compensation or hire are conducted pursuant to a part 119 certification, however, nonstop commercial air tours operated under a § 91.147 LOA conduct operations for compensation or hire without a part 119 certificate. Because air tours operated under § 91.147 carry passengers for compensation or hire, the FAA is proposing to apply part 5 to these operations.

The FAA considered excluding some smaller § 91.147 LOA holders from this proposal (those conducting fewer than 100 flights per year). The FAA does not collect data on number of flights conducted under § 91.147 LOAs; however, approximately 54 percent (373) have only one aircraft registration. These LOA holders might also meet the size standard for small businesses, but the FAA does not have data to make this determination either (see Section VII.B for details). Consistent with the approach proposed for part 135 operators who use only one pilot-in-command in their operations, the FAA believes such an exception would not meet the safety objective.

FAA review of NTSB accident reports from 2015 to 2020 identified one accident involving a fatality or serious injury in the segment of § 91.147 LOA holders conducting fewer than 100 flights per year. As discussed in Section V.A.1, small operators bear the same responsibility for safety as large operators.

The § 91.147 LOA holder accident resulted in 5 fatalities involving an operator conducting air tours.[46]

The NTSB indicated that the probable cause of this accident was the operator's use of a passenger harness/tether system, which caught on and activated the floor-mounted engine fuel shutoff lever. As a result, the aircraft lost engine power in-flight and ditched into the East River. In addition, the operator allowed outside influence on company decisions. Moreover, they failed to address foreseeable safety risks associated with the harness/tether device.

If the operator had an SMS in place the company would have conducted safety risk management prior to installing the harness/tether device. While conducting safety risk management, the hazard of the harness/tether device potentially shutting off the fuel lever would have been identified under § 5.53(a) and analyzed under § 5.55(a). Based on that analysis, the company would assess the safety risk (§ 5.55(b)) and implement appropriate safety risk controls (§ 5.55(c)). After developing safety risk controls, the organization would communicate them to the appropriate flight crews and maintenance personnel (§ 5.93) face-to-face, via email, or other methods that the company regularly uses to communicate with its employees.

In addition, all § 91.147 LOA holders are authorized to provide the same service, regardless of their size. Improving aviation safety for all passenger-carrying operations conducted for compensation or hire would require all § 91.147 LOA holders to meet part 5

[46] NTSB accident number: ERA18MA099.

requirements for SMS, so long as the implementation of those requirements remains scalable to the size and complexity of the organization. (For more information regarding scalability, please refer to Section V.F.). As the requirements are scalable, so too will be compliance costs.[47] And, as evidenced by the accident discussed, there are safety benefits to be achieved from implementation of SMS even among these smaller operators.

The FAA is aware that there are § 91.147 LOA holders with low flight volume, as well as 135 operators who use only one pilot-in-command in their operations.[48] The FAA seeks supporting information and data regarding whether this applicability should be limited to a certain subset of § 91.147 LOA holders and part 135 operators, and if so, how?

3. Part 21 Certificate Holders

The FAA is proposing to require holders of both a TC and a PC issued for the same product under part 21 to develop and implement an SMS that complies with the part 5 requirements. Section 102(a)(1) of ACSAA requires the FAA to initiate a rulemaking proceeding to require that, "manufacturers that hold both a type certificate and a production certificate issued pursuant to section 44704 of title 49, United States Code, where the United States is the State of Design and State of Manufacture, have in place an SMS that is consistent with the standards and recommended practices established by ICAO." As discussed in Section IV.E., Annex 19 requires ICAO member States to mandate SMS for the management of safety risk in design and production of aviation products. To meet the statutory requirement and align U.S. aviation design and manufacturing organizations with safety management practices followed by other international organizations complying with Annex 19, the FAA proposes to require holders of

[47] For example, in Section VII.B, Regulatory Flexibility Act, the FAA finds that the annual costs as a percentage of receipts for smaller operators with 1 to 9 aircraft is about 0.1% to 0.4% compared to those with a larger number of aircraft between 100 to 500 is about 0.2% to 0.3%.
[48] There are some § 91.147 LOA holders that conduct infrequent air tours even though that is not their primary business (e.g., flight schools, aerial applicators, or electronic news gathering, etc.).

both a TC and a PC issued for the same product under part 21 to develop and implement an SMS that complies with the part 5 requirements.

Additionally, the FAA proposes to apply part 5 to: (1) persons who hold or are licensees of a TC and are seeking a PC for that same product, and (2) persons who hold a PC for a product for which the person is a licensee of the TC. This approach ensures that there are no gaps in SMS applicability for part 21 certificate holders because TC licensees have the same privileges as TC holders under § 21.45 and the same reporting requirements as TC holders under § 21.3 for failures, malfunctions, and defects. Therefore, in the context of an SMS, the FAA considers a licensee of a TC to be equivalent to a holder of a TC and should be required to comply with the requirements of this proposed rule.

Through ACSAA, Congress intended for SMS requirements to apply to entities that design and manufacture products. The FAA further recognizes that critical decisions are made during design and development that impact the safety of aviation products. Consequently, companies that design a product and allow other companies to produce that product should be held to the same regulatory requirements as a person holding both the TC and a PC for the same product. Upon evaluating section 102(a)(1) of ACSAA, the FAA determined that the implementing regulations combined with the regulatory framework of part 21 could enable certain persons to avoid the proposed requirements by licensing their TC to another person to obtain a PC.[49] To address this gap, the FAA proposes to apply part 5 to TC holders who license their TC to other persons in accordance with §§ 21.47 and 21.55.

[49] Under §§ 21.47(a) and 21.55, a person who holds a TC for a product may enter into a written licensing agreement to allow another person to use that TC to obtain a PC. As a result, the person obtaining the PC would be allowed to use the TC holder's design approval to manufacture the product. Therefore, some business relationships result in one person holding the TC and a different person holding the PC for the same product.

The FAA notes that there may be persons who manufacture products under a TC in accordance with part 21 Subpart F. Section 21.123(g) requires these persons to obtain a PC within 6 months after the date of issuance of the TC. Therefore, these persons would be required to comply with the proposed rule because they have applied for a PC.

The FAA also notes that there may be persons who hold a PC for a supplemental type certificate. A supplemental type certificate is a design approval for a modification to a product. A person who holds a PC for a supplemental type certificate may produce articles used to modify the product but cannot produce a complete product. Under the proposed rule, part 5 would not apply to either a supplemental type certificate holder or a PC holder for a supplemental type certificate because these design and production approvals are for modifications to a product and not for complete products. Similarly, there are persons who may hold a TC and a PC that is designated for the production of parts or articles only. The proposed rule would not apply because the PC is only for the production of a part or an article and not for the same product.

The FAA considered applying part 5 to certain persons holding other design and production approvals such as technical standard order authorizations, parts manufacturer approvals, and supplemental type certificates, an approach that would be consistent with the Part 21 SMS ARC recommendation. Although there may be safety benefits to applying SMS to this larger population, the FAA could not substantiate these benefits. The FAA invites comments as to whether part 5 should apply to all holders of TCs, PCs, supplemental type certificates, technical standard order authorizations, or parts manufacturer approvals. The FAA requests that comments specify whether any exceptions should be made in the event that the FAA extends part 5 to these design and production approval holders and what those exceptions should entail. The FAA further requests information and data related to the safety benefits or impact of applying

part 5 to additional design and production approval holders beyond the applicability in this proposed rule.

B. General Requirements and Definitions

1. Definitions

The FAA is proposing to move the definitions in part 5 from current § 5.5 to proposed § 5.3 and to amend the definitions of "hazard" and "safety policy." Currently, the definition of "hazard" in part 5 is "a condition that could foreseeably cause or contribute to an aircraft accident as defined in 49 CFR 830.2." In Annex 19, ICAO defines "hazard" as "a condition or an object with the potential to cause or contribute to an aircraft incident or accident."[50] The FAA is proposing to amend the definition of the term "hazard" to "a condition or an object with the potential to cause or contribute to an incident or aircraft accident, as defined in 49 CFR 830.2," to further align with the internationally-recognized definition published by ICAO. Although the FAA previously did not include incidents in the definition of hazard,[51] the FAA now considers that the definition of hazard should include anything that affects or could affect the safety of aviation operations, not just those conditions or objects that could result in serious injury, death, or substantial damage. This is because many of the same circumstances that result in an incident could just as easily result in an accident. As discussed in Section III, Tinsley, Dillon, Madsen studied near accidents in dozens of companies across industries and in laboratory simulations. They determined that multiple near accidents preceded and foreshadowed every disaster and business crisis they studied, and that most near accidents were ignored. The authors found that "surfacing near misses and correcting root causes is one [of] the soundest investments that

[50] International Civil Aviation Organization, Annex 19 to the Convention on International Civil Aviation, Safety Management, Second Edition, pp. 1-2. July 2016.
[51] 80 FR 1308.

organizations can make." [52] Therefore, the FAA is proposing to add to the definition of hazard, the term "incident" as defined in 49 CFR § 830.2. The FAA believes that this proposed change would improve both international alignment and the identification of hazards. 49 CFR § 830.2 defines "incident" as an occurrence other than an accident, associated with the operation of an aircraft, which affects or could affect the safety of operations. The FAA does not define a threshold or *de minimis* standard for what could affect aviation safety. The FAA believes that organizations are in the best position to determine what occurrences would have the ability to impact the safety of their products or services, and as a part of developing their SMS they may define thresholds for what might entail a reportable incident that could affect aviation safety.[53] They are also in the best position to determine the processes and tools they can use to communicate this information to their employees. Because safety risk management and safety assurance are ongoing and iterative processes, the organization will continually improve its ability to identify, communicate, and mitigate hazards, preventing them from resulting in incidents or accidents.

In addition, the FAA proposes two other modifications to the definition of "hazard" to more closely align with the ICAO definition: (1) while objects are a subset of the term "condition," the FAA is proposing to add the term "object," and (2) the FAA is proposing to change "foreseeably" to "the potential to." These changes would align the definition more closely with the ICAO definition of "hazard".

In addition, the FAA proposes to amend the definition of safety policy to change "certificate holder" to "person." This proposed change would make the definition consistent with

[52] Tinsley, Catherine H., Robin L. Dillon, and Peter M. Madsen. How to Avoid Catastrophe. Harvard Business Review. https://hbr.org/2011/04/how-to-avoid-catastrophe. 2011.
[53] For additional discussion on hazard information sharing, please see section V.C.4.b. (Safety Promotion (Subpart E), Proposed amendments to subpart E).

the revised applicability proposed by this rule, which includes persons who are not certificate holders (e.g., LOA holders).

2. Requirement to Develop and Implement SMS

As discussed previously, the FAA is proposing to move the General Requirements for SMS currently contained in § 5.3 to proposed § 5.5. For clarity, the FAA would reorganize proposed § 5.5 into three subparagraphs: 1) general requirements for the components of an SMS, 2) a new proposed requirement for a system description, and 3) the requirement to maintain an SMS in accordance with part 5. Additionally, the FAA is proposing to remove certain provisions from current § 5.3 as unnecessary.

The FAA proposes to add a requirement for all persons subject to part 5 to develop a system description. A system description is a summary of aviation-related processes and activities and a description of interfacing persons that contribute to the safety of the aviation-related products and services provided. The FAA considers that organizations that receive the aviation-related products and services could contribute to the safety of those products and services and would, therefore, be identified among the interfacing persons.

A system description is important because organizations are often made up of a complex network of interactions involving different internal departments that also interface with external organizations that contribute to the safe operation of the organization. For an organization to have an effective SMS, it must fully understand its aviation-related business operations and activities that impact the management of aviation safety. Without that understanding, the SMS is unlikely to be clearly defined, adequately applied, or effectively executed. The use of an organization system description would also enable the organization to have a clear picture of its many interactions.

Although the focus of this regulation is on aviation, some organizations might also extend their SMS to their non-aviation related activities, such as security and occupational safety and health issues. If an organization elects to do so, the FAA would only conduct oversight of the SMS related to its aviation functions. The FAA is proposing to limit the application of SMS only to the aviation-related activities conducted by the organization under 14 CFR.

The FAA also proposes to add a provision in § 5.5(c) to make clear that the SMS requirements in part 5 are continuing requirements. For example, the requirements of part 5 do not cease to apply the moment a person develops and implements an SMS. Rather, a person must also maintain SMS in accordance with part 5. The new provision in proposed § 5.5(c) is not intended to impose a new requirement on the regulated community; it is intended only to clarify the existing requirements.

Furthermore, to remove unnecessary rule text, the FAA proposes to remove the provisions that are currently contained in § 5.3(b) and (c). Section 5.3(b), which requires the SMS to be maintained in accordance with the recordkeeping requirements of Subpart F of part 5, is unnecessary because the recordkeeping requirements of Subpart F apply irrespective of this provision. Additionally, § 5.3(c), which requires compliance with the relevant regulatory requirements of 14 CFR, is unnecessary because persons must comply with applicable regulatory requirements in 14 CFR irrespective of whether the FAA expressly requires compliance in § 5.3(c).

The FAA also proposes to remove two requirements from current § 5.3(a). First, the FAA proposes to remove the requirement for the SMS to be submitted to the Administrator for acceptance. The proposal to expand the applicability of part 5 has resulted in the FAA proposing new regulations to address the additional entities that would be covered by part 5, namely §§ 5.7,

5.9, 5.11, 5.13, and 5.15. These proposed regulations would set forth the requirements for each regulated entity, including which documents the entity must submit to the Administrator for acceptance or approval. Second, the FAA proposes to remove the requirement for an SMS to be appropriate to the size, scope, and complexity of the organization's operation. The FAA has determined that this provision is unnecessary because the FAA's SMS requirements are performance-based and scalable. As such, persons that are required to develop an SMS under part 5 may scale their SMS to the size and complexity of their organizations. The FAA does not need to expressly require scalability in the regulations when the performance-based requirements are designed for that purpose.

C. Components of Safety Management Systems

An SMS is composed of four major components: (1) safety policy, (2) safety risk management, (3) safety assurance, and (4) safety promotion. Additionally, an SMS requires documentation and recordkeeping. Currently, part 5 contains a subpart for each major component and a subpart for documentation and recordkeeping. The proposed rule would retain these subparts but includes proposed amendments to each one.

1. Safety Policy (Subpart B)

Safety policy is the foundation for an SMS and must be documented and communicated throughout the organization. All organizations must define policies, processes, procedures, and organizational structures to accomplish their safety objectives and goals. A documented safety policy ensures that all employees of the organization are aware of management's commitment to achieving the organization's safety objectives and are aware of their own role in meeting the safety objectives.

a. Summary of Current Requirements in Subpart B

Subpart B of part 5 sets forth the requirements for the organization's safety policy. The safety policy component of SMS includes safety policy documentation, identification accountability and authority in regard to safety, designation and responsibilities of safety management personnel, and emergency response planning. Section 5.21 currently requires a documented safety policy that: (1) establishes the organization's safety objectives, (2) includes a commitment to fulfill those safety objectives, (3) contains a statement concerning the necessary resources for implementation of the SMS, (4) contains a safety reporting policy, (5) defines unacceptable behavior and conditions for disciplinary action, and (6) establishes an emergency response plan for transitioning from normal to emergency operations.

b. Proposed Amendments to Subpart B

The FAA is proposing to add a requirement to § 5.21(a) that would require the safety policy to include a code of ethics that applies to all employees, including management personnel and officers. The code of ethics would clarify that safety is the organization's highest priority. This proposed requirement responds to section 102(f) of ACSAA, which mandates that "the regulations issued under subsection (a) shall require a safety management system to include establishment of a code of ethics applicable to all appropriate employees of a certificate holder, including officers (as determined by the FAA), which confirms that safety is the organization's highest priority." The FAA agrees that a code of ethics is beneficial to overall safety; therefore, this proposal would fulfill that legislative mandate and extend the requirement to all persons required to have an SMS.

The FAA acknowledges that section 102(f) of ACSAA only requires the FAA to apply the code of ethics requirement to certain part 21 certificate holders. However, to the greatest

extent possible, the FAA seeks consistency in the SMS requirements. Furthermore, the FAA believes having a code of ethics, applicable to all employees of the organization, would influence the safety culture of the organization. If employees see their management engaged with safety as the highest priority, then that same safety attitude would likely prevail throughout the entire organization. Therefore, all persons required to have an SMS would benefit from having a code of ethics that confirms that safety is the organization's highest priority. For that reason, the FAA is proposing to apply this requirement to all persons who would be required to have a part 5-compliant SMS.

Additionally, the FAA proposes minor amendments to subpart B (§§ 5.21 through 5.27) to reflect the new applicability requirements of the proposed rule. Currently, these regulations use the term "certificate holder" because part 5 applies to part 119 certificate holders authorized to conduct operations under part 121. The FAA proposes to remove all references to "certificate holder." Instead, the proposed rule refers to "person" to reflect the new applicability set forth in proposed § 5.1. Additionally, the FAA proposes to amend the current requirements of § 5.25 that refer only to "certificate(s)" by adding a reference to "Letter(s) of Authorization." This would ensure that the requirements of § 5.25 pertaining to the accountable executive apply to § 91.147 LOA holders.

2. Safety Risk Management (Subpart C)

Another core component of an SMS is safety risk management. A comprehensive SMS using safety risk management includes identifying hazards, assessing risk, and developing risk controls to reduce or eliminate risk associated with those hazards. Safety risk management allows an organization to focus on the areas of greatest risk from a safety perspective, taking into

account system complexity and scope of the operations, and allows the organization to implement appropriate risk controls.

Organizations must apply safety risk management when implementing new or revising existing systems, developing operational procedures, and to address hazards or ineffective controls identified through safety assurance processes. For example, an organization would initiate safety risk management after learning that certain de-icing operations are not effective and use safety risk management to analyze the de-icing operations.[54] Safety risk management includes the following: (1) system analysis, (2) identifying hazards associated with the system, (3) analyzing the risk associated with the hazards, (4) assessing risk associated with the hazards to determine acceptable safety risk, and (5) controlling the risk of identified hazards when necessary.

The system analysis serves as the initial source for hazard identification when new systems are designed, when systems are revised, and when new operational procedures are developed. The system analysis also serves as a basis for describing and organizing information for risk analysis when potential hazards or ineffective risk controls are discovered in the safety assurance process. The system analysis processes ensure that information regarding the function and purpose of the system; the system's operating environment; outline of the system's processes and procedures; and the personnel, equipment, and facilities that the system requires for operation are analyzed so that hazards may be appropriately identified.

[54] There are existing regulations that prohibit a takeoff when frost, ice, or snow (contamination) is adhering to the wings, control surfaces, rotors or propellers of an aircraft and some operations require a de-icing program [§§ 91.527, 121.629, and 135.227]. However, this example describes how operators can use SMS to focus on certain de-icing operations that may not be performing adequately and use a structured process to correct performance deficiencies or identify design changes (additional controls) using the SRM process. Current regulations prohibit takeoff when certain conditions are met, but there are no requirements for the company to look more broadly at the system and determine if or when there is a systemic issue with de-icing.

Next, an organization must use established processes to identify hazards within the context of the system analysis. Any hazards that are identified must be analyzed to the extent necessary to determine possible outcomes associated with each hazard.

The organization must then analyze the outcomes to determine the severity and likelihood (i.e., risk) associated with the outcomes.[55] Subsequently, the organization must assess the safety risk, which requires the certificate holder to determine whether the safety risk is acceptable or mitigation is required.

Finally, the organization would develop and implement risk controls where necessary. Risk controls may mitigate the outcomes by reducing the likelihood or severity of the outcome or eliminating hazards by design. After these controls are developed, but before being implemented, the organization must assess whether the controls are likely to be effective and would not introduce any new hazards. When the risk controls are assessed and determined to be acceptable, the organization would implement them. Those controls would then be continuously monitored under the processes developed under subpart D, Safety Assurance, to ensure they are effective.

a. Summary of Current Requirements in Subpart C

Subpart C of part 5 currently contains the safety risk management requirements for an SMS. Section 5.51 establishes when a certificate holder would need to apply safety risk management processes and procedures to systems to identify the hazards and assess the risk associated with the systems. Once a certificate holder determines that the processes of safety risk management have been triggered under § 5.51, it must conduct a system analysis, as required by

[55] As discussed in examples later in the preamble, this analysis may be either qualitative or quantitative depending on the size of the organization, the nature of the safety issue being addressed, and availability of relevant data, among other factors. SRM, as with all components of the SMS, should be scaled to fit the organization. Since each safety issue is unique and each SMS is developed to fit the organization, the FAA cannot make general estimates or judgments regarding the amount of time or documentation an organization would need for any given identified hazard. Consistent with the intent to scale this rule to the organization and the issue, the FAA would look to the organization to make that determination on a case-by-case basis.

§ 5.53. Section 5.53 provides information that must be considered when conducting a system analysis and identifying hazards. Currently, when conducting a system analysis, the following must be considered: (1) function and purpose of the system, (2) the system's operating environment, (3) an outline of the system's processes and procedures, and (4) the personnel, equipment, and facilities necessary for operation of the system. Section 5.55 establishes the requirements for safety risk assessment and controls.

b. Proposed Amendments to Subpart C

The FAA is proposing several changes to subpart C. First, as in the other subparts, the FAA is proposing to amend § 5.51 and § 5.55 by removing the term "certificate holder" to reflect the broadened applicability of the proposed rule. Instead, these sections will refer to "any person required to have an SMS under this subpart."

Additionally, the FAA is proposing to add a new requirement, § 5.53(b)(5), which would add the interfaces of the system to the list of items that must be considered when conducting a system analysis in accordance with § 5.53. Interfaces are a point where two or more operations, systems, subjects, or organizations connect and interact. Interfaces can be internal (e.g., between functional groups in an organization, between hardware/software components of the system being analyzed, or between processes in the system being analyzed), or they can be external (e.g., between organizations, between the system being analyzed and other systems, or between a human using the system and the system itself). The FAA is proposing to include the interfaces of the system in the list of considerations required when performing the system analysis in § 5.53 because hazards can exist with interfacing organizations, processes, or systems in the way the two interfacing parts interact with each other. Understanding the interfaces while conducting a system analysis is important because the system analysis serves as the basis for identifying and

analyzing hazards and their associated risk. This addition would further improve the ability of part 121 operators to analyze risk. As the aviation system becomes more complex, dynamic, and integrated, understanding these interfaces can assist in the identification of related hazards and improve safety overall. An SMS that looks both inward and outward is more effective at identifying hazards, a core function of any operational SMS. The FAA emphasizes that under this proposed requirement interfaces would be considered only to the extent that they affect aviation safety. For example, the interface between a part 21 aircraft manufacturer's engineering and payroll departments would not be considered when conducting a systems analysis under § 5.53 because this interface would not impact the aviation safety of the aircraft design. Additionally, the use of fall-arrestors in operator maintenance facilities to protect individuals working on aircraft would not be considered when conducting a system analysis in § 5.53 either because the interface is an occupational safety and health concern and does not directly affect the quality of work performed on the aircraft.

3. Safety Assurance (Subpart D)

Safety assurance verifies that the risk controls put into place under safety risk management continue to be effective in managing risk and that the organization's safety performance is meeting or exceeding its safety objectives. Safety assurance has three elements: (1) safety performance monitoring and measurement; (2) safety performance assessment; and (3) continuous improvement.

Safety performance monitoring and measurement requires the development and maintenance of processes and systems that monitor operational processes and collect data on the performance of the organization. Within an organization, there are processes to collect data, such as those to meet regulatory requirements or voluntary reporting programs. In addition, there are

external data sources, such as FAA systems or information from other organizations. Safety assurance processes must also include investigations of accidents and incidents. Employee reporting systems provide another source of information regarding the performance of the organization.

The safety performance assessment is used to assess the organization's performance against its safety objectives. The safety performance assessment includes verifying the organization's compliance with established safety risk controls. In addition, the safety performance assessment identifies changes in operational environments, potential new hazards, and ineffective controls. If the assessment reveals new hazards or ineffective controls, the organization must initiate safety risk management processes. The accountable executive designated in accordance with § 5.25 must review information from the safety performance assessment on a regular basis.

Finally, safety assurance requires continuous improvement. The analysis and assessment functions of safety assurance are essential in alerting the organization to significant changes in the operating environment, possibly indicating a need for system change to maintain effective risk controls. As a result, an organization with an SMS must take steps to correct any safety performance deficiencies identified in the assessments.

a. Summary of Current Requirements in Subpart D

Safety assurance requirements for an SMS are established in subpart D of part 5. Section 5.71 covers safety performance monitoring and measurement, § 5.73 covers safety performance assessment, and § 5.75 covers requirements for continuous improvement. Pursuant to § 5.71(a), a person must develop and maintain processes and systems to acquire data with respect to its operations, products, and services to monitor the safety performance of the organization. Section

5.71(a) prescribes specific data that must be monitored, audited, evaluated, and investigated. Among these requirements, § 5.71(a)(7) requires the processes and systems to include a confidential employee reporting system in which employees can report hazards, issues, occurrences, and incidents, as well as a means to propose solutions and safety improvements. Once an organization with an SMS collects data through its safety monitoring and measurement processes, it must use the processes developed under § 5.71(b) to analyze the data.

Specifically, § 5.73 requires the organization to conduct assessments of its safety performance against its safety objectives contained in its safety policy, which include reviews by the accountable executive to: (1) ensure compliance with safety risk controls, (2) evaluate the performance of the SMS, (3) evaluate the effectiveness of safety risk controls, (4) identify changes in the environment that may introduce new hazards, and (5) identify new hazards. This analysis is used to transform raw data into usable information that can support informed decision-making related to safety.

Finally, § 5.75 requires the organization to establish and implement processes to correct any safety performance deficiencies that are identified in the safety performance assessment, which ensures continuous improvement of the organization's safety performance.

b. Proposed Amendments to Subpart D

The FAA is proposing to remove the word "operations" from § 5.71(a) to clarify the requirement and avoid confusion with the term "operator." In addition, the FAA is proposing to amend §§ 5.71-5.75 by replacing "certificate holder" with "person" or "a person required to have an SMS under this subpart" to reflect the proposed broadened applicability of the rule.

The FAA is also proposing to add the text, "without concern of reprisal for reporting" to the confidential employee reporting system requirement in current § 5.71(a)(7) to meet section 102(e) of ACSAA which mandates that the proposed regulation:

> [R]equire a safety management system to include a confidential employee reporting system through which employees can report hazards, issues, concerns, occurrences, and incidents. A reporting system under this subsection shall include provisions for reporting, without concern for reprisal for reporting, of such items by employees in a manner consistent with confidential employee reporting systems administered by the Administrator.

Further, section 102 mandates that regulations required by the statute shall also require holders of both a TC and a PC to submit a summary of confidential employee reports received in accordance with section 102 to the Administrator at least twice per year. Therefore, the FAA is proposing to add a new § 5.71(c), which would require holders of both a TC and a PC for the same product to submit a summary of the confidential employee reports received under § 5.71(a)(7) to the FAA once every six months.

The FAA recognizes that its proposed rule language, which would require holders of both a TC and a PC for the same product to submit a summary of the confidential employee reports received under § 5.71(a)(7) to the FAA once every 6 months, slightly differs from the statutory language. Section 102(e) of ACSAA requires the summary of reports to be submitted at least "twice a year." As the statute does not require a particular interval for submission of the "twice a year" reports, the FAA finds it reasonable to require the reports every six months as it would preclude a person from submitting the same summary of reports twice in the same month and

provide the FAA with an opportunity to assess reports received throughout the year. Accordingly, the FAA proposes to require the submission of these reports once every 6 months.

Although the ACSAA mandate was specific to part 21 certificate holders with both a TC and a PC, employees of all persons required to comply with part 5 should be protected from reprisal if they report hazards, issues, concerns, occurrences, or incidents. Further, the intent of the confidential system would be to provide some protection to employees, so they are able to report issues without concern of reprisal. Therefore, the FAA is proposing to apply the revision to the employee reporting system requirements in § 5.71(a)(7) to all persons required to comply with part 5. The FAA notes that this protection extends to the reporting of hazards, issues, concerns, occurrences, or incidents. If the individual reporting is responsible for creation of the hazard due to intentional actions or gross negligence, this provision would not protect them from employment actions based on the underlying offense.

However, the FAA is proposing in § 5.71(c) to require only holders of both a TC and a PC for the same product to submit a summary of the confidential employee reports to the FAA. This proposed requirement is targeted at part 21 certificate holders as this additional agency oversight is consistent with ACSAA. Summaries of confidential employee reports submitted by certificate holders with both a TC and a PC are protected from public disclosure by 49 U.S.C. 44735(a)(2), if the summaries are requested pursuant to the Freedom of Information Act (FOIA). The FAA is not proposing to extend this requirement to all persons required to have an SMS because the information would not be protected under 49 U.S.C. 44735(a)(2) for persons that are not covered by the ACSAA requirement.

4. Safety Promotion (Subpart E)

Safety promotion requires communication to promote safety practices. Safety promotion also requires that employees within an organization attain and maintain the competencies necessary to perform the duties relevant to the operation and performance of the SMS. Training to maintain the SMS may vary depending upon the position and responsibilities of the employee and may range from formal classroom training to simple notices to employees. In addition to training, an organization ensures that employees are aware of the SMS policies, processes, and tools that are relevant to their responsibilities.

a. Summary of Current Requirements in Subpart E

The requirements for safety promotion are established in subpart E of part 5. Section 5.91 requires training for the employees of the organization to ensure they attain and maintain the competencies necessary to perform their duties relevant to the operation and performance of the SMS. Section 5.93 requires the organization to develop and maintain a means of communicating safety information that: (1) ensures employees are aware of the SMS policies, processes, and tools that are relevant to their responsibilities; (2) conveys hazard information relevant to the employee's responsibilities; (3) explains why safety actions have been taken; and (4) explains why safety procedures are introduced or changed.

b. Proposed Amendments to Subpart E

The FAA is proposing two amendments to the safety promotion requirements of subpart E. First, as in the other subparts, § 5.91 and § 5.93 would be amended to reflect the broader applicability of proposed part 5 by replacing "certificate holder" with "any person required to have an SMS under this part." Second, the FAA proposes to add new § 5.94 to require notification of hazards to interfacing persons, and require any person subject to part 5 to develop

and maintain procedures for reporting hazard information to interfacing persons and for receiving hazard information from other parties.

In some circumstances, a hazard might be identified by a person who is not in a position to address the hazard or there may be another person who could implement a more effective mitigation. For example, there may be a hazard identified by an aircraft operator that needs to be addressed by an aircraft manufacturer to mitigate the hazard for other operators. Similarly, an aircraft manufacturer may identify a hazard for which crew procedures or training are an appropriate mitigation to be taken by an operator. In § 5.94, the FAA proposes that persons required to have an SMS under part 5 must share information regarding identified hazards with interfacing persons identified in their system description under proposed § 5.5 who, to the best of their knowledge, could address the hazard or mitigate the risk. Interfacing persons may be other private entities or a government entity, including the FAA. For example, a person required to have an SMS might determine that, to the best of their knowledge, the FAA's Air Traffic Organization is the interfacing person who would be in the best position to address the hazard. The number of business connections that would fall within the scope of an "interfacing person" is not limitless, however. An interfacing person would be an entity providing a good or service connected to aviation safety. A payroll accounting firm, for example, would not fall within this requirement. Within that boundary, an organization's total number of interfacing persons would likely be related to the size and complexity of the operation. The more external entities an organization relies on for aviation safety purposes, the greater the number of interfacing persons they would have for the purposes of this rule.

There may be instances in which the person with an SMS under part 5 is required to communicate hazard information to an interfacing person who is not required to maintain an

SMS under part 5. In this case, there is still a utility and benefit to safety in communicating hazard information even where the receiving party does not have to comply with part 5 because the receiving party may still address the hazard. Further, while persons are only required to share hazard information to relevant interfacing entities who, to the best of their knowledge, could address the hazard, the proposed requirements do not preclude anyone from sharing additional information with additional entities if they so choose.

The number of interfaces an organization has depends on the type of goods or services the organization provides. FAA believes companies already know who their interfaces are, since the service providers, suppliers, and customers are those with whom they have an ongoing business relationship.

In accordance with standard business practices, these organizations already have records of these relationships for purchasing, payment, and shipment purposes. Therefore, the FAA does not believe it would be burdensome to document these existing interfaces and share information about hazards, when appropriate, leveraging existing contacts and channels of communication. The FAA anticipates that the organization would update and revise contact information for these interfaces as a normal part of day-to-day business, as they would even in the absence of this proposed rule.

For example, an aircraft manufacturer may identify that the interfacing persons in their system description include various suppliers. The manufacturer has a business relationship with these interfaces. As with most business relationships, these relationships include a way to communicate hazards with all of these interfaces including their suppliers, repair stations, and customers. The manufacturer might issue a service bulletin or an operator information letter. It

could also communicate a hazard directly with a supplier or through its supplier management/purchasing organization.

The purpose of this proposed requirement is to ensure that relevant information is shared with the person in the best position to address the hazard or mitigate the associated risk prior to an incident or accident occurring. This sharing would enable a network of organizations that would work collaboratively and be more effective at identifying hazards and mitigating risk than an individual organization working in isolation. [56]

The following examples illustrate the network effect the FAA believes would be created by the proposed requirement to share hazard information.

Example 1: A part 121 operator receives an employee report from a pilot stating that the aircraft flight management system deviated from the expected landing approach at a particular airport. The flight crew notices the deviation and corrects the flight path for a safe landing. The operator's management classifies this employee report as a hazard because the airport is surrounded by high elevation terrain. Although this incident occurred during daytime and in visual meteorological conditions, management determines that if the same issue occurred during a night landing or in instrument meteorological conditions, the aircraft could be turned toward terrain without detection by the flight crew, potentially resulting in an accident.

The operator's management mitigates the risk through the safety risk management process by publishing an internal notice to all its flight crews warning of the issue and requesting them to avoid using that particular approach when flying into the particular airport. Additionally, the operator determines that the best person to mitigate the risk is outside its organization and

[56] The FAA is not aware of other CAAs currently requiring this type of collaborative approach. However, industry has recognized the value of this approach and it is discussed in the international standard: SM-0001_Issue B – Implementing a Safety Management System in Design, Manufacturing and Maintenance Organizations, which was developed by industry.

uses its system description to identify the appropriate interfacing person with whom the information regarding this hazard should be shared. Per proposed § 5.94, the operator sends a hazard report to the aircraft manufacturer. The aircraft manufacturer, who is a TC and PC holder, receives the hazard report and begins an investigation of the issue. The aircraft manufacturer also reports the issue per proposed § 5.94 to the flight management system supplier and navigation database supplier, which, although not required to have an SMS, are interfacing persons identified in the aircraft manufacturer's system description.

The aircraft manufacturer initiates safety risk management on the issue. Through computer simulation, the aircraft manufacturer duplicates the incident reported by the part 121 operator.[57] The aircraft manufacturer safety risk management team develops and completes two actions: one short term to mitigate the risk, and one long term to eliminate the hazard. For the short-term mitigation, the flight management system database is updated to remove the affected approach. This database update occurs monthly, so all airlines flying with the flight management system automatically receive the update. For the long-term mitigation, the flight management system software is updated to correct the flight management system deviation. The aircraft manufacturer issues a service bulletin to all airlines recommending incorporation of the software update. Following the software update incorporation, the affected approach is added back into the navigation database and all airlines automatically receive it at the next monthly update.

This example illustrates how an employee report pursuant to § 5.71(a)(7) and communication between organizations would assist in quickly mitigating and later eliminating a hazard that could result in an accident if not addressed. The pilot reported the incident, the airline

[57] It is common for an Original Equipment Manufacturer to replicate an incident after receiving a report. Typically, the manufacturer would reach out to the reporting entity (in this example, the airline operator) to gather as much information as available about the incident. While there are risks with information transfer delays between the interfacing entity and the reporting entity, FAA believes these will be improved with the proposed rule requiring hazard information sharing.

performed the organization's safety risk management process, and also reported the hazard to the aircraft manufacturer pursuant to § 5.94. The aircraft manufacturer reported the hazard to the flight management system supplier pursuant to § 5.94 and then performed safety risk management to initially mitigate the risk and ultimately eliminate the hazard.

Without applying this new requirement, under the current process, the part 121 operator would report the incident to FAA flight standards under § 121.703(c). Flight standards would evaluate the incident and, if determined to be an airworthiness concern, would report it to the appropriate Aircraft Certification Office. The Aircraft Certification Office would then complete a risk analysis per FAA Order 8110.107. If the risk assessment was determined to be unacceptable, the aircraft certification office would work the aircraft Original Equipment Manufacturer to develop corrective action. The proposed rule requires direct hazard communication between the operator and Original Equipment Manufacturer which will facilitate more timely resolution of the incident.

Example 2: Three pilots, who work for a part 135 operator, report through the operator's employee reporting system that markings at the operator's home base airport at a newly paved intersection with a runway are confusing and nearly resulted in a runway incursion. The operator determines the reports are valid and notifies the airport authority of the pilots' observations in accordance with proposed § 5.94. The airport then could close that taxiway intersection and re-mark the pavement.

Example 3: A § 91.147 LOA holder who conducts air tours in a Stearman Biplane procures a radial engine from a repair station that specializes in overhauling radial engines. The rebuilt engine is installed on the aircraft, ground tested, and then flown for a 3-hour maintenance test flight to ensure the engine is operating correctly. During the test flight, the engine seems to

stop producing power altogether when the throttle is reduced to idle. On final approach, the engine stops, and though the aircraft lands without incident, the engine cannot be restarted because the idle jet in the carburetor vibrated out of the tapped fitting. The LOA holder and operator of the Stearman report the issue to the part 145 repair station in accordance with proposed § 5.94. While the repair station is not required to have an SMS, they would have a duty to conduct an investigation under § 145.221.[58] The repair station investigates its stock of carburetor jets and finds five additional jets in a single lot that were improperly threaded. The repair station can then isolate the nonconforming lot of jets and rebuild the faulty carburetor. This example illustrates that there is still benefit to sharing hazard information with entities that would not be required to have an SMS.

Finally, the FAA acknowledges that there may be some concern regarding sharing information outside an organization. The FAA does not expect that sharing hazard information would require the sharing of proprietary information; it would only require the organization to adequately describe the hazard. The FAA expects that in instances where the hazard cannot be adequately described without the use of proprietary information, the organization itself would likely be in the best position to address that hazard, and therefore, information sharing would not be necessary. The FAA seeks comment on whether organizations can share information about hazards without disclosing proprietary information. The FAA also seeks comment on whether the holder of the proprietary information would be in the best position to address the hazard. Please provide examples of any situations in which the holder of proprietary information would not be able to share information about a hazard without disclosing that proprietary information.

[58] Under this existing requirement, the repair station must submit a Service Difficulty Report. In the Service Difficulty Report, the repair station must include the "apparent cause of the failure, malfunction, or defect," meaning that the repair station would have to conduct an investigation to determine the apparent cause.

5. SMS Documentation and Recordkeeping (Subpart F)

Documentation of SMS processes, procedures, and outputs is necessary for persons to conduct a meaningful analysis under safety risk management, to review safety assurance activities, and for the FAA to review for compliance during inspections. Documentation and recordkeeping also preserve information that can be used to make future safety-related decisions.

a. Summary of Current Requirements in Subpart F

The documentation and recordkeeping requirements for SMS holders are currently contained in subpart F of part 5. As currently described in § 5.95, the certificate holder is required to document its safety policy and SMS processes and procedures. Organizations with an SMS under part 5 are required to document their safety policy and SMS processes and procedures.

As described in § 5.97, the certificate holder currently must maintain records of the outputs (e.g., risk assessments and implemented risk controls) of safety risk management and safety assurance processes. Outputs of safety risk management processes must be retained for as long as they remain relevant to the operation. Records can be kept either electronically or in paper format. In addition, the certificate holder is required to retain outputs of safety assurance processes for a minimum of five years, SMS training records for as long as the individual is employed by the person, and communication records for a minimum of 24 months. Communication records required to be retained would be limited to any communications related to SMS-related policies, processes and tools, hazard information, safety actions taken, and why safety procedures were introduced or changed. The timelines associated with the retention of these documents ensure that they are kept for a time period that provides the certificate holder

with sufficient historical data to assure compliance and to conduct the required analyses and assessments. A certificate holder may retain its documents for longer time periods if needed.

The documentation and records keeping requirements, like the rest of part 5, are designed to be scalable and flexible to accommodate a wide variety of business models and sizes. The specific information to be documented, and the means through which it is documented and retained, may vary depending on the scope and complexity of the systems. Organizations are currently required to maintain a myriad of business records. We anticipate that they will leverage existing systems or methods of records retention to meet these new requirements. The flexibility in the requirements enable the organization to use the most efficient means to fit their operations. For more information regarding scalability, please refer to Section V.F.

b. Proposed Amendments to Subpart F

The FAA is proposing to amend §§ 5.95 and 5.97 to change "certificate holder" to "any person required to have an SMS under this part." In addition, the FAA is proposing to add § 5.95(c) to require the documentation of the system description developed under proposed § 5.5(b). The proposed addition is necessary to ensure that the system description would be documented.

The FAA is proposing to amend § 5.97(d) to require the persons required to have an SMS to retain records of all communications that occur under the hazard reporting requirements of proposed § 5.94 for a minimum of 24 consecutive calendar months. This proposed requirement is necessary to ensure consistency in the records for communications required under § 5.93 and proposed § 5.94. Maintaining these records would also enable traceability between information that is received from outside entities and actions taken using safety assurance or safety risk management processes. These records would be kept either electronically or in paper format. The

timelines associated with the retention of these documents would ensure that they are kept for a time period that provides the organization with sufficient historical data to assist the FAA with oversight. Nothing in the proposed rule would preclude a person required to have an SMS under part 5 from retaining documents for longer time periods if they so choose.

D. Implementation of SMS

1. Requirements for Part 121 Operators

Part 121 operators currently must comply with the part 5 requirements. The FAA is proposing to add § 5.7 to establish certain new requirements and compliance dates for part 121 operators.

Proposed § 5.7(a) would apply to all part 121 operators that have an FAA-accepted SMS as of the effective date of a final rule adopted pursuant to this rulemaking. The requirements in proposed § 5.7(a) are necessary to bring part 121 operators into compliance with the proposed revisions to part 5. Part 121 operators would be required to revise their SMS to meet the new requirements proposed in §§ 5.5(b) (System Description), 5.21(a)(7) (Safety Policy Code of Ethics), 5.53(b)(5) (Safety Risk Management Interfaces), 5.71(a)(7) (Employee Confidential Reporting System), 5.94 (Hazard Notification), 5.95(c) (Documentation of System Description), and 5.97(d) (SMS Records), discussed in this section. Because part 121 operators already have an accepted SMS, the FAA considers that these new requirements would require minor adjustments. For example, current part 121 operators should be able to develop a system description with relative ease because they already have an FAA-accepted SMS and all the information needed for development of the system description. Also, a statement of compliance is unnecessary because the FAA has completed its review of the operator's SMS prior to the

enactment of this rule. The changes to this entity's SMS are minimal and the FAA can review such changes in the normal course of its oversight of the operator.

Because the proposed requirements may be met with relative ease, the FAA has determined that 12 months would provide a sufficient amount of time for current part 121 operators to implement any necessary changes based upon the amendments to part 5 and submit revisions to their SMS to the FAA for acceptance.

Under proposed § 5.7(a)(2), part 121 operators would have to submit revisions to their SMS for FAA acceptance in a form and manner acceptable to the Administrator no later than 12 months following the effective date of the rule. The FAA expects that current part 121 operators would submit revisions to their SMS through the same process they currently use for submission of changes for acceptance by the FAA.

Proposed § 5.7(b) would apply to any person applying for authorization to conduct operations under part 121 of this chapter after the effective date of the rule. New certificate holders authorized to operate under part 121 would have to develop, implement, and maintain an SMS that complies with the requirements of part 5 as amended by this rulemaking. Those seeking to operate under part 121 would have to submit the statement of compliance in a form and manner acceptable to the Administrator as part of the certification process. Under this proposal, the FAA would incorporate review of a person's compliance with part 5 requirements into the certification review process.

The statement of compliance must describe how part 5 requirements have been met, and the FAA would review that statement of compliance during the certification process to assess the applicant's compliance with part 5. The statement of compliance enables the FAA to validate the applicant's compliance with part 5 prior to issuing a certificate.

2. Requirements for Part 135 Operators and Holders of § 91.147 Letters of Authorization

The FAA is proposing to add new § 5.9 to establish requirements and compliance dates for part 135 operators, and holders of an LOA issued under § 91.147. Proposed § 5.9(a) would require those certificate or LOA holders to develop and implement an SMS in compliance with part 5 no later than 24 months after the effective date of the proposed rule. The FAA expects certificate holders or LOA holders to submit the statement of compliance for acceptance by the FAA within 24 months after the effective date of this proposed rule. Proposed requirements for statements of compliance are described further in this section. This rule would also require these operators to maintain their SMS in accordance with part 5.

Proposed § 5.9(b) would affect those persons applying for a certificate under part 135 or those applying for an LOA under § 91.147 who have not yet received their certificate or LOA prior to the effective date of this proposed rule. These persons would be required to develop and implement an SMS that meets the requirements of part 5 before their certificate or LOA could be issued. They would be required to submit a statement of compliance in a form and manner acceptable to the Administrator during the certification process or LOA issuance process. These operators would also be required to maintain their SMS in accordance with part 5.

Based on lessons learned and the experience gained from part 121 operators who have previously implemented SMS, as well as the voluntary program implementation for part 135 operators, the FAA proposes that 24 months is adequate to implement an SMS and provide a statement of compliance to the FAA. This timeframe allows the operator sufficient time to implement SMS without unnecessarily delaying the realization of benefits derived from SMS.

a. Statements of Compliance for Current Part 135 Operators and § 91.147 Letter of Authorization Holders and Applicants

Under this proposal, part 135 operators, and § 91.147 LOA holders would be required to develop an SMS and integrate that SMS into the existing operations of the certificate or LOA holder. The certificate or LOA holder would also be required to submit a statement of compliance in a form and manner acceptable to the Administrator no later than 24 months following the effective date of this proposed rule.

The statement of compliance notifies the FAA that the organization has complied with part 5 and prompts the FAA to update its oversight tools to include SMS. Although these statements of compliance would not be subject to an approval process, the FAA would validate the part 135 operators' and § 91.147 LOA holders' compliance with part 5 and the accuracy of their statements of compliance under existing oversight processes. Because the certificate or LOA holder would be required to integrate the SMS into its existing operations processes during implementation, the FAA expects that existing oversight processes are sufficient to oversee and validate part 5 compliance. The FAA would review statements of compliance upon submission and would validate that the organization's SMS meets the part 5 requirements over the course of several inspections. If, during those inspections, the FAA finds that the SMS does not meet the requirements of the proposed rule, a notification in writing of the deficiencies would follow.

The proposal would also require applicants for authority to conduct operations under part 135 or § 91.147 to submit a statement of compliance to the FAA for acceptance during the certification or LOA application process, as applicable. The statement of compliance enables the FAA to validate the applicant's compliance with part 5 prior to issuing a certificate or LOA.

b. Statements of Compliance for Existing Part 121/135 Combination Certificates

For those part 119 certificate holders with combination certificates authorizing them to operate under parts 121 and 135 that already have an SMS in place due to the current part 5 requirements for part 121 operators, the FAA would review the part 121/135 operator's revised SMS submission. Certificate holders authorized to operate under parts 121 and 135 whose SMS was previously acceptable to the FAA for the part 121 portion of their organizations may choose to expand their existing SMS processes already in place to include their part 135 operations. In this case, certificate holders would submit the changes to their SMS for acceptance as described for the existing part 121 certificate holders in Section V.D.1.

Certificate holders would also be required to submit a statement of compliance for the part 135 operations. The FAA would accept the submitted statement of compliance and validate the operator's compliance with part 5 using existing oversight processes, as discussed in Section V.D.5. The FAA expects that documenting the statement of compliance for the part 135 operations would be comparatively simple because the operator has already met SMS requirements for the part 121 operations. Currently, of the seven existing combined certificates, five have already implemented SMS that covers both part 121 and 135 operations.

3. Requirements for Holders of Both Type Certificates and Production Certificates Issued for the Same Product under Part 21 and Certain Part 21 Production Certificate Applicants.

The FAA proposes to add a new § 5.11 to establish certain SMS requirements and compliance dates for holders with a TC and a PC for the same product issued under part 21. The FAA proposes a person that holds both a TC and a PC for the same product issued under part 21 of this chapter on or before the effective date of the proposed rule would be required to: (1) develop an SMS that meets the requirements of this part; (2) submit an implementation plan for

FAA approval in a form and manner acceptable to the Administrator no later than December 27, 2024; (3) implement the SMS in accordance with the FAA-approved plan no later than December 27, 2025; and (4) maintain the SMS in accordance with this part.

As discussed in Section IV.D., the proposed requirements are consistent with section 102(a)(1) of ACSAA, which requires that the FAA's rulemaking require these certificate holders to adopt an SMS by four years from enactment of the statute, December 27, 2024.[59] Because the implementation plan would require certificate holders to submit a description of how they would comply with the part 5 requirements, including but not limited to the policies, processes, and procedures used to meet those requirements, the FAA considers the certificate holder to have adopted the SMS system at the time the certificate holder files the implementation plan. By filing the implementation plan for FAA approval, the certificate holders commit to implementing the SMS described in the implementation plan and any modification to the SMS required by the FAA during the implementation plan approval process.

Under proposed § 5.13, the FAA proposes a person that holds, is applying for, or has a pending application for a PC under part 21 of this chapter for a product for which the person holds or is a licensee for a TC, would be required to: (1) develop an SMS that meets the requirements of this part; (2) submit an implementation plan for FAA approval in a form and manner acceptable to the Administrator during the certification process; (3) implement the SMS in accordance with the approved plan no later than one year from the FAA's approval of the implementation plan; and (4) maintain the SMS in accordance with this part.

Furthermore, under proposed § 5.15, the FAA is proposing to establish certain SMS requirements for any person that holds a TC for a product who allows another person to use the

[59] Section 102(a)(2)(D) of ACSAA.

TC to manufacture a product under a PC. However, the requirements proposed in § 5.15 are consistent with those proposed in §§ 5.11 and 5.13.

Persons subject to §§ 5.11, 5.13, or 5.15 would not be required to file a statement of compliance under this proposal because these organizations would have to implement their SMS in accordance with their FAA-approved implementation plan which is sufficient for the FAA to verify their compliance with part 5.

4. Implementation Plans

a. Implementation Plans for Part 21

FAA proposes to add a new § 5.17 to establish requirements for implementation plans filed under proposed §§ 5.11 (PC holders who are holders or licensees of a TC for the same product), 5.13 (TC holders or licensees applying for a PC for the same product), and 5.15 (TC holders who license their TC to others to obtain a PC). The implementation plan would include a description of how the person intends to comply with part 5, including, but not limited to, new or existing policies, processes, or procedures used to meet the requirements of part 5. The description would also demonstrate how that person would comply with the requirements of part 5 once the SMS is implemented and may reference manuals and other relevant documentation.

Upon request by the FAA, any person required to submit an implementation plan under the proposal would have to provide the FAA access to the data necessary to demonstrate that the person has developed and implemented an SMS that meets the applicable part 5 requirements. This data could include the outputs of safety risk management.

For a person that holds both a TC and a PC for the same product issued under part 21 of this chapter (§ 5.11), or for persons that hold a TC that have licensed their TC to allow another person to use that TC to obtain a PC (§ 5.15(a)), on or before the effective date of the final rule,

the person would submit an implementation plan to the FAA for approval in a form and manner acceptable to the Administrator by December 27, 2024. Section 102(a)(1) of ACSAA requires the FAA's rulemaking to require holders of both a TC and a PC to adopt an SMS by December 27, 2024. The FAA recognizes that ACSAA does not apply to persons who license their TC to allow another person to obtain a PC. However, the FAA is proposing the same compliance deadlines for consistency purposes. The FAA invites comments about whether the FAA should extend the compliance timelines for persons who license their TC to other persons and, if so, what timelines the FAA should establish. The FAA requests that responsive comments include the commenter's rationale for the proposed compliance timelines.

Section 102 of ACSAA also requires the FAA to: (1) promulgate rules to require SMS for holders of both a TC and PC, and (2) approve the certificate holders' SMS. By approving the implementation plans from part 21 certificate holders, the FAA would review the submission and would determine whether the implementation plan appropriately describes how the entity intends to comply with the requirements of the proposed part 5. Additional information regarding the form and manner of submission would be available in Advisory Circular (AC) 21-58, Safety Management Systems for Part 21 Type and Production Certificate Holders.

The implementation plan would include a description of how the person intends to comply with the requirements of the proposed rule. The FAA would review and approve the implementation plan and provide confirmation to the person of FAA's approval of the implementation plan. The person would then be required to implement the FAA-approved SMS by December 27, 2025, and maintain the SMS in accordance with the approved implementation plan.

After the effective date of the proposed rule, a person applying for a PC under part 21 for a product for which the person holds a TC, or for which an application is pending, would submit the implementation plan for FAA approval during the certification process. For persons who hold a TC and are entering into a licensing agreement to allow another person to use that TC to obtain a PC, the TC holder would submit the implementation plan for FAA approval when providing the written licensing agreement in accordance with § 21.55. The FAA would review the applicant's implementation plan and approve the means by which the person intends to comply with the applicable sections of the proposed rule. The person would then be required to implement the FAA-approved SMS within one year after FAA's approval and maintain the SMS in accordance with the implementation plan.

b. Removal of Implementation Plan Requirement

Currently, § 5.1(b) states that a part 119 certificate holder must submit an implementation plan to the FAA for review no later than September 9, 2015, and the implementation must be approved no later than March 9, 2016. Additionally, current § 5.1(c) states that the implementation plan may include any of the certificate holder's existing programs, policies, or procedures that it intends to use to meet the requirements of part 5, including components of an existing SMS. These requirements applied to part 119 certificate holders who were authorized to conduct operations under part 121 as of the effective date of the 2015 final rule. The FAA adopted these requirements to ensure that part 121 operators properly developed SMS within the required timeframe. The FAA proposes to remove these requirements because the dates have passed, and the requirements are no longer necessary. All part 121 operators have developed and implemented SMS in accordance with part 5.

The FAA recognizes that the proposed rule would extend the SMS requirements to additional entities who already hold certificates, and these certificate holders would have to develop and implement an SMS in accordance with part 5. Based on the FAA's experience with part 121 operators complying with part 5 and those entities participating in the voluntary SMS program, the FAA proposes to require new applicants for certificates to operate under part 121, as well as certificate holders under part 135 and LOA holders under § 91.147 to submit a statement of compliance in lieu of an implementation plan. Certificate holders receive continuous oversight and are regularly inspected by the FAA. The FAA has determined that the existing oversight processes such as FAA's Safety Assurance System,[60] would be sufficient to ensure compliance with part 5 by certificate holders under parts 121 and 135 and § 91.147 LOA holders, and therefore it is not necessary to require an implementation plan.

5. Compliance

In accordance with the FAA's compliance program, FAA personnel investigate apparent violations of FAA statutes and regulations and have a range of options available for addressing apparent violations, when appropriate, including compliance, administrative, and enforcement action. The FAA's goal is to use the most effective and appropriate means to ensure compliance with part 5 and prevent recurrence. The underlying principles and oversight processes that form the foundation of FAA's approach to compliance would not change under this proposed rule.

[60] The Safety Assurance System is the Federal Aviation Administration's oversight tool to perform certification, surveillance, and Continued Operational Safety. The Safety Assurance System includes policy, processes, and associated software the FAA Flight Standards Service uses to capture data when conducting oversight. For more information see: https://www.faa.gov/about/initiatives/sas.

E. Proposed Changes to Sections 119.8, 91.147, 21.135, and 21.147

1. Proposed Amendments to Section 119.8

The FAA is proposing to revise § 119.8 to require certificate holders authorized to conduct operations under part 121 or 135 to comply with the applicable requirements of part 5. Currently, § 119.8 only requires certificate holders authorized to conduct operations under part 121 to comply with the SMS requirements in part 5; the proposed revision would add part 135 operators. Additionally, the FAA is revising § 119.8 to remove the compliance dates which have passed and are no longer applicable.

2. Proposed Amendments to Section 91.147

As discussed in Section V.A.2., the FAA proposes to require LOA holders operating under § 91.147 to meet the requirements of part 5. Specifically, the FAA proposes to amend § 91.147 to require an operator conducting passenger carrying flights for compensation or hire to have an FAA-accepted safety management system that meets the requirements of part 5, and to add a requirement for an LOA applicant to submit with the application the statement of compliance required under part 5. The FAA also proposes non-substantive changes, including organizational changes to improve the readability of the section.

The requirement for LOA holders and applicants to develop an SMS that complies with part 5 would be found in both part 5 and in § 91.147. Although part 5 would be applicable to § 91.147 LOA holders under proposed 5.1, this amendment is necessary to make compliance with part 5 a requirement for operation.

Because § 91.147(c) contains a complete list of all documents that applicants for an LOA must submit as part of their application, the FAA is proposing to add the statement of

compliance required under proposed § 5.9(b)(2) to the list of documents submitted when applying for an LOA.

To eliminate redundancy in the regulations, the FAA is proposing to remove the phrase "for drug and alcohol testing" from current § 91.147(a), which defines "operator" for the purposes of § 91.147 and for drug and alcohol testing.[61] The drug and alcohol testing requirements are contained in part 120 of 14 CFR. Under part 120, the regulations reference "operator as defined in § 91.147" numerous times. In light of these cross-references, which expressly refer to the definition of operator in § 91.147, the FAA has determined that it is unnecessary and redundant for current § 91.147(a) to state that the definition of operator is "for drug and alcohol testing."

3. Proposed Amendments to Sections 21.55, 21.135, and 21.147(b)

The FAA proposes to add a new paragraph (c) under § 21.135 to require each applicant for or holder of a PC to meet the applicable requirements of part 5. A conforming edit is also proposed for § 21.147(b) to add the proposed § 21.135(c) to the list of requirements with which applicants for an amendment to a PC must comply. Because ACSAA requires the Administrator to approve a part 21 certificate holder's SMS, the FAA is proposing these changes to part 21 to ensure that compliance with part 5 would be a pre-requisite for obtaining or amending a PC.

Additionally, the FAA is proposing to revise § 21.55 to require a type certificate holder, who allows a person to use the type certificate to manufacture a product to meet the applicable requirements of part 5. The FAA is also proposing to revise the heading of this section to account for the additional rule language.

[61] One reason § 91.147 was added to the regulations was to clarify the applicability of drug and alcohol programs (Final Rule; National Air Tour Safety Standards, 72 FR 6884, Feb. 13, 2007). The FAA notes that part 120 was added two years later (Final Rule; Drug and Alcohol Testing Program, 74 FR 22649, May 14, 2009), which further functioned to eliminate confusion and streamlined the requirements of the drug and alcohol program.

F. Scalability

Under this proposal, part 5 would apply SMS requirements to organizations that are diverse in size and complexity (i.e., aircraft fleet size, operations, product types and production volume, services, and number of employees). As the proposal is performance-based, the procedures and documentation for compliance are scalable to accommodate a wide variety of business models and sizes. This proposed rule specifies a basic set of processes to form a framework for the SMS, but does not specify particular methods for implementing these processes. This provides a balance between standardization and a robust SMS structure while allowing considerable flexibility for how an individual aviation organization chooses to establish its SMS.

The SMS ARC recommended that part 5 be both scalable and flexible to accommodate many business models.[62] This recommendation was incorporated into the current requirements of part 5. The four components of SMS (safety policy, safety risk management, safety assurance, and safety promotion) set forth in part 5, identify the system's requirements, but do not prescribe the means of achieving these requirements. Each organization has the flexibility to tailor an SMS that works for the organization's size, scope, and complexity to comply with the proposed rule. To enable scalability and flexibility, part 5 would continue to describe the desired measurable outcomes that must be accomplished. This performance-based approach would grant flexibility by enabling regulated persons to develop methods, processes, or other means of compliance that are appropriate to the size, scope, and complexity of their organization and operations.

For example, the objective of safety risk management – to identify hazards, assess safety risk, and develop and monitor controls within the organization's SMS – would be the same

[62] SMS ARC Recommendations Final Report, p.2. March 31, 2010.

regardless of the size of the organization even though methods used might be different. The FAA does not anticipate that small organizations will need additional management and staff to satisfy the requirement elements of safety risk management. For example, smaller organizations, with few aircraft operating in a limited geographic area, might record, and track the results of the safety risk management process with paper records or digital files using common word processing or spreadsheet applications.

Additionally, persons required to have an SMS under the proposed rule would be able to comply with part 5 SMS requirements through a variety of means. The FAA considers that organizations may be able to leverage consensus or community standards, which are typically developed by third-party consultants or trade associations, to meet the requirements of part 5. In addition, the FAA recognizes that persons may already have systems and processes in place that meet the part 5 requirements.

In addition, aviation organizations that perform more than one service would be able to adapt their SMS to align with the complexity of their operations. For example, some aviation organizations have multiple certificates (e.g., the aviation organization might have multiple certificates authorizing it to conduct flight operations and to perform aircraft maintenance for other organizations, or the aviation organization might have multiple certificates authorizing it to manufacture certain products and perform flight operations or aircraft maintenance). An aviation organization with multiple types of certificates may choose to implement a separate SMS for each certificate by following the acceptance or approval process as applicable for each type of certificate. Although not required to do so, these aviation organizations may only want to implement one SMS that encompasses all their aviation-related safety activities. An aviation

organization with multiple certificates would be required to meet the part 5 statement of compliance or implementation plan requirements as applicable for its certificates.

A single pilot operator would build an SMS using tools and procedures commensurate with the size, complexity, and sophistication of the organization. Small organizations are likely to rely on the same tools that they already use in their day-to-day operations. For example, an operator may rely on standard word processing software, Excel spreadsheets, email, or even paper record books to document the system, policies, processes, and procedures. The single pilot operator would choose based on their own preferences and comfort level with the different types of technologies. This is a business decision the operator will make to maximize its own efficiencies, and it may look very different even among organizations of comparable size. In the discussion that follows, the FAA provides examples of how an SMS might be scaled to particular persons who would be required to comply with this proposed rule.

The following example illustrates how a small single pilot operator could scale implementation of SMS to fit its organization. The responsible individual would first develop a system description, which would identify the aviation operations that would be covered by the SMS and its organizational interfaces. This might be a hand-written document or a digital file on a computer. The organization would then document its safety policy; again, this could be done on paper or in a digital file. The example provided in the appendix in AC 120-92 could be used as a starting point, but there are also various examples available on the Internet that could be used as a starting point.

To meet safety risk management and safety assurance requirements, the operator could use a tool such as the Web-Based Analytical Technology (WBAT) platform which is FAA-supported software, to support employee reporting and SMS. The platform could also be used to

meet recordkeeping and documentation requirements. However, simpler options such as digital files on a computer or paper files could be used as well. For instance, AC 120-92 provides worksheets that the operator could use to meet most safety risk management requirements. To meet safety assurance requirements in a simpler way in a single pilot operator, the pilot could observe how an operation is working and identify trends in real-time. If there are issues, the pilot could take appropriate action and reevaluate the results. Any operational process could be observed and does not necessarily require formal audits or forms. Again, all of this could be documented on paper or in a digital file.

To meet communication requirements a small operator might use existing email applications to share information within its organization and with interfacing organizations, as appropriate. To meet documentation and recordkeeping requirements, the organization could use paper or digital files just as they might do for other areas of their operations such as invoicing, service and rental agreements, etc. The organization could document this using a medium of their choosing, including something as simple as a notebook.

The example above references resources available through or supported by the FAA. However, as previously noted, third-party consultants and trade associations are also resources available to assist in the development of an SMS. Further, aviation colleges and universities, ICAO, and other civil aviation authorities such as EASA and Transport Canada Civil Aviation have material that can be used to help develop an SMS.

The following example illustrates how SMS might operate in a small, low complexity operator. This example company has two helicopters and four pilots, and it provides air tour services within a 25 nautical mile range of its home airport. The company has developed a safety policy under § 5.21 that reminds everyone safety is the company's number one priority. It

contains in bold letters at the bottom, "If you see something unsafe, say something." This policy statement is one page, signed by the company owner, and posted inside the office for all to see.

After a flight, one of the pilots reports to the air tour operator's home base that there is a new hazard in the flightpath of their desired tour route. The hazard is a power line across a canyon and there are no visibility markers on that line. The report of the hazard is the start of the safety risk management process under § 5.51(d). Under § 5.53, the air tour operator researches the location and height of the power line relative to the flight path in the area. The operator calls the power company and learns that the line is ½-inch thick and an expected date of installation for the markers is unknown due to manufacturing delays. This information is recorded in a notebook or digital file. Even the process for conducting this analysis under § 5.53(c) can also be located in the notebook or in a digital file.

Under § 5.53, the air tour operator determines the unmarked power line is an operational hazard. Knowing that helicopters and unseen power lines are a high risk, and realizing that the company's air tour route places them in the exact spot of the canyon where the unmarked power line exists, makes this particular risk assessment easy. The air tour company determines the severity of hitting that power line would be catastrophic and the likelihood of encountering that power line is high due to their route of flight. Using a risk matrix, the operator qualitatively determines that the risk of conducting tours with the presence of the unmarked power line is unacceptable and requires risk controls be implemented to reduce the risk to an acceptable level. All this information is placed into the notebook. The operator develops risk controls under § 5.55(c), which, in this case, is a deviation to the planned air tour route. The evaluation of the risk acceptance under § 5.55(d) is done by talking to other employees, brainstorming, or engaging with other operators. The records of meetings or conversations, as well as the risk

controls themselves, are documented using a medium of their choosing, including something as simple as a notebook or digital file consistent with the recordkeeping requirements of § 5.97.

The operator's next step is to monitor the controls it put into place through its safety assurance program. The operator will check on the deviation to the route it put in place under § 5.71(a)(1) through proposed (a)(7). This can be done by tracking the flight path or auditing the new procedures and keeping those notes in the notebook. Under § 5.93, the operator will promote safety by informing the pilots of the hazard and communicating the safety action taken, which was providing the air tour route with a deviation. Each pilot can be issued a safety alert via a memo that can be handed to them upon check in and perhaps sent via email before the flight starts.

This example illustrates how aviation safety is improved because current regulations do not require operators to have a process to identify and manage hazards. For example, operators are not currently required to: have a process to proactively identify hazards before they become accidents, establish a structured method to assure hazards are controlled, have formal communication methods that notify all company personnel of new procedures, or keep records regarding safety actions taken to prevent possible accidents.

The FAA recognizes that there is a spectrum of complexity within organizations across the aviation product and service provider industry. As discussed earlier in this section, there are relatively low-cost implementation resources available to assist persons to meet part 5 requirements, including online platforms such as the Web-Based Analytical Technology (WBAT) platform. This platform supports all aspects of an SMS and it includes the following tools: SMS implementation manager, safety risk management, safety assurance, employee reporting, and data sharing. Additionally, the FAA has drafted guidance in which there are

numerous scalability examples of how various organizations can meet the pertinent SMS requirements based upon where an organization may fall on the spectrum of complexity. The proposed Advisory Circulars (AC 21-58, Safety Management Systems for Part 21 Type and Production Certificate Holders and AC 120-92, Safety Management for Aviation Service Providers), provide in-depth discussions on how to meet each of the part 5 requirements, what tools/methods may be employed, how they may be employed, who would be involved, and includes sample tools and worksheets. For further information, see the draft AC 21-58, Safety Management Systems for Part 21 Type and Production Certificate Holders and AC 120-92 Safety Management for Aviation Service Providers, which are included in the docket of this proposed rule.

G. Examples of Real World Scenarios

The following accident summaries provide examples of ways that an organization having an SMS under the proposed rule might provide mitigation in real world scenarios. To illustrate how SMS would be used by different entities under the proposed rule, the following accident summaries have been arranged by the type of operator or certificate holder involved in the accident.

1. Accident Involving Design and Production under Part 21

On June 28, 2015, a single engine aircraft crashed following a total loss of engine power due to the failure of the alternator drive coupling. The pilot and two passengers were fatally injured, and the airplane was destroyed by a post-crash fire. The manufacturer of the aircraft and aircraft engine were issued type and production certificates and the manufacturer of the installed replacement alternator coupling had been issued a parts manufacturer approval for the coupling

pursuant to 14 CFR part 21. The instructions provided by the engine manufacturer did not advise that a loose or improperly tight coupling could lead to a loss of power.

The NTSB report highlighted a review of the engine manufacturer's warranty records for the 5 years preceding the accident revealed six claims relating to the alternator coupling.[63] If an engine manufacturer in this circumstance were required to comply with the proposed rule, the warranty information would be used to prevent future safety issues. Under § 5.71, the engine manufacturer would develop a process for warranty data it receives and conduct an investigation under § 5.71(a)(6). The engine manufacturer would conduct audits of its processes and the instructions it provided on how to inspect or measure the alternator coupling under § 5.71(a)(3) before distributing the coupling. In this accident, the NTSB report also mentioned there were 10 events filed in the FAA Service Difficulty Report System relating to the alternator coupling.[64] The engine manufacturer would analyze those reports under § 5.71(b), which could have also revealed the inadequacy of the procedures. Then, under § 5.73, the engine manufacturer would conduct an assessment of its safety performance and ensure compliance with the risk control it established in developing new instructions for the inspection and measuring of that alternator coupling.

Section 5.51(d) would require the engine manufacturer to apply the safety risk management process to the information collected under § 5.71 that indicated the identification of hazards or ineffective risk controls. Section 5.53(a) would require the engine manufacturer to analyze its systems resulting in a focused evaluation of the maintenance instructions and tooling

[63] In this example, the organization is a medium-sized company that manufactures engines. The FAA does not have detailed data on the number of warranty claims during the five-year period.

[64] Service Difficulty Reports are evaluated by FAA flight standards offices. If the initial evaluation indicates a serious airworthiness problem, the FAA Aircraft Certification Office and the Aircraft Evaluation Division responsible for the product must be informed of the equipment service difficulty and any recommendations for corrective actions. Original Equipment Manufacturers are not notified when a Service Difficulty Report is logged. Currently, manufacturers are not required to proactively scan the Service Difficulty Reports database.

requirements provided with the distribution of the alternator coupling. Then, under § 5.55, the engine manufacturer would analyze the safety risk associated with the procedures that inadequately ensured that the coupling was properly tightened, determine whether the risk was unacceptable, and may develop risk controls that could result in a different set of maintenance instructions.

2. Accident Involving Part 135 Operator

On June 25, 2015, a single-engine, turbine-powered, float-equipped airplane, operated by a part 135 on-demand air carrier, collided with mountainous, tree-covered terrain about 24 miles east-northeast of Ketchikan, Alaska.[65] The pilot and eight passengers sustained fatal injuries, and the airplane was destroyed.

The NTSB established the probable cause of this accident as the pilot's decision to continue visual flight into an area of instrument meteorological conditions, which resulted in his geographic disorientation and controlled flight into terrain. The NTSB report listed several contributing factors: (1) the operator's company culture, which tacitly endorsed flying in hazardous weather and failed to manage the risk associated with the competitive pressures affecting Ketchikan-area air tour operators, (2) the operator's lack of a formal safety program, including not having an SMS, and (3) the operator's inadequate operational control of flight releases. The NTSB found that the operator's management did not hold themselves accountable for conducting safe operations and fostered a company culture that condoned operating in weather conditions with inadequate visibility for visual flight.

If the proposed rule had been in effect during this time, the operator would have had requirements that may have prevented or mitigated an accident such as this one.[66] With an SMS,

[65] NTSB accident number ANC15MA041.
[66] In this example, the operator employed approximately 30 to 40 people.

the operator would have a safety policy that clearly articulates the company's safety objectives and its commitment to safety as required by § 5.21. Under §§ 5.23 and 5.25, the operator would have to define accountability for safety within the organization and identify those members of management that are responsible for hazard identification, safety risk assessment, and safety promotion within their areas of responsibility. The operator allowed the operational control functions to be delegated to flight schedulers. Operational control provides for management of planning, departure, and inflight decision making to assure the safety of flights. These operational control functions were not performed adequately by those flight schedulers, leading to a loss of effective operational control. Section 5.23 requires all members of management to be accountable for their area of responsibility. Operational control responsibility resides with the Director of Operations, a required management position for an air carrier.

Section 5.51 would require the operator to apply safety risk management in the development of operational procedures. The operator had a policy that both the pilot and flight scheduler must agree that the flight can be conducted safely before a flight may be launched. This action did not take place and, more importantly, the decision to initiate that particular flight was made by a new pilot who was subject to cultural and peer influences. Section 5.51 would help close this gap by requiring the operator to conduct safety risk management when developing its procedures, policies, and training. During the safety risk management process, § 5.53 would require the operator to analyze its procedures and policies of operational control with the consideration of the operating environment of Ketchikan and the pressure of getting those passengers back to their cruise ship on time. Section 5.55 would require the operator to assess its risk and develop risk controls so the pilot would not be the sole decision maker regarding

whether the flight should proceed.[67] Section 5.55 would also add an additional control to its training program, requiring the inclusion of the risk of the operating environment and the hazardous local weather patterns.

The safety assurance requirements of § 5.71 would require the operator to monitor its operational processes and operational environment, to include auditing its processes and procedures. Any of these monitoring actions could have revealed that the company procedures relating to operational control of their flights were not followed. Upon discovering those discrepancies, the operator would enter back into the safety risk management process and carefully look at those procedures to include interfaces, such as training of personnel involved, to ensure all company personnel are adequately trained to follow the company procedures. Additionally, auditing of the operator's pilot training program under § 5.71 might reveal the exclusion of two items, training of hazardous local weather patterns and controlled flight into terrain avoidance training. Both are essential training items for this environment, which potentially could be identified during an analysis under § 5.53.

Under § 5.91, the operator would be required to provide SMS training to management personnel. This SMS training could positively affect the safety culture of the entire organization. Section 5.93 would require the operator to explain why safety actions and procedures are introduced or changed, thus also having an effect on the safety culture.

The FAA recognizes that in this example, the operator was already in violation of its internal company policies. Although the company's policy included a requirement not required by regulation, the documentation that the company was not adhering to its own policies could be evidence that the organization is not maintaining its SMS per this proposed rule. Documentation

[67] In this example, the operator already had a policy requiring more than one person to decide whether the flight should be initiated. Therefore, the operator was not in conformance with its company policy related to operational control.

requirements under an SMS create objective evidence that the organization is identifying hazards, assessing risk, and mitigating that risk as needed. The FAA may audit this evidence at any time. Where the person has failed to comply with FAA regulations, including SMS regulatory requirements, the FAA may take enforcement action. This would also help the FAA identify safety-deficient organizations. Knowledge that adherence to its SMS policies could be audited by the FAA may encourage an organization to develop a stronger safety culture.

3. Accident Involving Helicopter Air Tour Conducted under Section 91.147

On February 18, 2006, a helicopter operated by an air tour operator crashed into the Pacific Ocean, off the coast of Hawaii, after attempting an emergency landing following a maintenance malfunction of the main rotor.[68] Three of the passengers were able to exit the helicopter but one passenger was trapped inside and drowned.

The NTSB determined the probable cause of this accident was the in-flight failure of the engine to transmission drive shaft due to improper maintenance, which resulted in low main rotor rpm and a subsequent hard landing on water.

The NTSB highlighted in its findings a failure of adequate managerial oversight during a critical maintenance task on the aircraft. A rated mechanic was not present throughout the removal, inspection, and reinstallation of the engine-to-transmission drive shaft. Additionally, maintenance records revealed no entries for the required annual inspection, or the 100-hour inspections and several required component inspections were overdue. Even though both of these deficiencies were violations of existing regulations, the FAA believes that an SMS would have allowed for the organization to self-identify, correct, and prevent the issue, negating the need for after-the-fact enforcement of non-compliance with the current regulation. If the operator

[68] National Transportation Safety Board accident number WPR16FA072.

implemented an SMS as proposed by this rule, the accountability for all members of management regarding their area of responsibility would have been explicitly defined, as required by § 5.23.

The NTSB final accident report indicated the accident was caused by the in-flight failure of the engine-to-transmission drive shaft due to some missed maintenance processes. Under § 5.71, the organization could have identified the missing steps in the maintenance process. NTSB's review of maintenance records revealed no entries pertaining to a current annual inspection or 100-hour inspection. An auditing process under § 5.71 could have identified this deficiency. Additionally, a component inspection sheet provided by the operator revealed that several required component inspections were overdue and had not been completed at the time of the accident. The operator reported to the NTSB that he knew those inspections were coming due but did not realize the helicopter had flown such that it exceeded the inspection interval (which was a violation of existing regulatory requirements). Therefore, the owner did not know those items were overdue until he printed the status sheet for the investigation of the accident. If the operator monitored its operational processes as would be required under § 5.71, it would have conducted safety risk management under § 5.51 that would have identified hazards involving the lack of procedural actions resulting in overdue inspections. The organization would then develop and implement additional safety risk controls by applying § 5.55, such as management oversight, thus preventing future occurrences.

In this example, the operator was in violation of existing safety regulations. As with the previous example where an internal company policy was not followed, SMS documentation requirements would either create the objective evidence that the organization is identifying hazards, assessing risk, and mitigating risk as needed, or the lack of proper SMS documentation

may demonstrate that the organization is in violation of regulation, including SMS regulatory requirements. The FAA may audit this evidence at any time. The evidence created through the SMS would help the FAA to identify safety-deficient organizations more effectively. Where deficiencies exist, the FAA may take enforcement action; however a single safety incident would not necessarily indicate that an organization is out of compliance with its SMS.

H. Data Reporting and Protection

In accordance with proposed § 5.94, any organization that identifies a hazard in the operating environment would be required to provide notice of the hazard to the interfacing person or persons identified in the system description, who, to the best of their knowledge, would be able to address the hazard or mitigate the risk.

Title 49 U.S.C. 44735 provides protection from disclosure under the Freedom of Information Act,[69] for certain reports, data, or other information that are submitted to the FAA voluntarily and are not required to be submitted to the Administrator under any other provision of law. Section 44735(b)(4) limits disclosure of "reports, data, or other information produced or collected for purposes of developing and implementing a safety management system acceptable to the Administrator." Section 44735(b)(4) also limits disclosure of "reports, analyses, and directed studies, based in whole or in part on reports, data or other information" related to the development and implementation of a SMS.

The protections of 49 U.S.C. 44735 do not extend to information that is required to be submitted to the FAA.[70] Therefore, if § 5.94 requires that notice of a hazard be submitted to the FAA (because the FAA is an interfacing party), that submission is not protected from disclosure

[69] See 5 U.S.C. 552(b)(3)(B).

[70] As discussed earlier in this preamble, for summaries of confidential employee reports to the FAA that would be required under proposed § 5.71(c), 49 U.S.C. 44735(a)(2) offers statutory protection from disclosure under the Freedom of Information Act, pursuant to 5 U.S.C. 552(b)(3)(B).

under 49 U.S.C. 44735. However, if that notice of hazard submitted to the FAA contains trade secrets, or confidential commercial or financial information, the FAA must protect the information from public disclosure under 18 U.S.C. 1905 or 5 U.S.C. 552(b)(4). If a person voluntarily shares hazard information with the FAA and such data is not required to be submitted under § 5.94, then such information would be protected from disclosure under section 44735.

The FAA does not control data shared by a person under proposed § 5.94 with other interfacing persons such as other governmental entities or private parties. Certain protections might be available under a private, legally-binding agreement to protect the information (e.g., non-disclosure agreement) amongst the parties sharing the information, or under certain state or local laws or regulations.

Persons that would be subject to § 5.94 may seek legal guidance to determine the most appropriate way to handle and protect data and information submitted to, or received from, interfacing persons. The FAA encourages these persons to assess applicable State legal frameworks to determine how to comply with data sharing, privacy laws, and reporting requirements, and how to best protect the data shared or received. These persons should evaluate whether states afford data sharing and information protection mechanisms through local statutes or regulations, or through other legal or contractual arrangements, such as confidential disclosure agreements. The FAA expects that industry already has agreements or other arrangements with those interfaces they interact with the most to protect their data and prevent unauthorized

disclosures.[71] The FAA considers that industry would be best able to determine how to effectively share hazard information with interfacing parties.

VI. Guidance Material

The FAA provides guidance to the industry on potential methods to comply with part 5. Included in the docket for this proposed rule are draft updates to FAA's existing SMS guidance material, AC 120-92: Safety Management Systems for Aviation Service Providers, and new draft guidance in AC 21-58: Safety Management Systems for Type and Production Certificate Holders.

A. Guidance for Aviation Service Providers

The FAA is revising AC 120-92: Safety Management Systems for Aviation Service Providers, to provide guidance in meeting the new requirements of part 5, and for all types of certificate holders and LOA holders who would be required to have an SMS under the proposed rule. The draft AC also describes methods of scalability for the service providers to meet the proposed requirements based on their size and the services they provide. Lastly, this draft AC has been updated to include current information and best practices. The AC would continue to support the FAA SMS Voluntary Program participants.

B. Guidance for Design and Production Approval Holders

The FAA has drafted a new AC 21-58: Safety Management Systems for Type and Production Certificate Holders that would assist part 21 TC and PC holders and applicants in developing and implementing an SMS compliant with the proposed part 5 requirements. This

[71] As discussed earlier in the preamble, interfaces are often entities like suppliers or companies that the certificate holder contracts with for services. In these cases, contracts likely already exist, so the need to share hazard information could be added to those existing contracts or included in future contracts. The FAA notes that there are analogous information sharing agreements already present in the aviation industry. For example, an aircraft owner is provided with an Airplane Flight Manual. If the operator finds errors in the manual there is a means to report this to the Original Equipment Manufacturer. The manufacturer may make the change and then send out modifications to all the owners of that type of aircraft, therefore providing a closed loop communication system.

new draft advisory circular is similar to the updated AC 120-92, geared toward the needs of part 21 certificate holders, and is consistent with AC 120-92 to facilitate corporate-wide SMS implementation for part 21 certificate holders that also have other certificates under 14 CFR.

VII. Regulatory Notices and Analyses

Federal agencies consider impacts of regulatory actions under a variety of executive orders and other requirements. First, Executive Order 12866 and Executive Order 13563 direct that each Federal agency shall propose or adopt a regulation only upon a reasoned determination that the benefits of the intended regulation justify the costs. Second, the Regulatory Flexibility Act of 1980 (Public Law 96-354) requires agencies to analyze the economic impact of regulatory changes on small entities. Third, the Trade Agreements Act of 1979 (Public Law 96-39) prohibits agencies from setting standards that create unnecessary obstacles to the foreign commerce of the United States. In developing U.S. standards, this Trade Act requires agencies to consider international standards and, where appropriate, that they be the basis of U.S. standards. Fourth, the Unfunded Mandates Reform Act of 1995 (Public Law 104-4) requires agencies to prepare a written assessment of the costs, benefits, and other effects of proposed or final rules that include a Federal mandate that may result in the expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100,000,000 or more (adjusted annually for inflation) in any one year. The current threshold after adjustment for inflation is $165,000,000, using the most current (2021) Implicit Price Deflator for the Gross Domestic Product. The FAA has provided a detailed RIA in the docket for this rulemaking. This portion of the preamble summarizes the FAA's analysis of the economic impacts of this rule.

In conducting these analyses, the FAA has determined that this rule: (1) will generate benefits that justify costs; (2) is a “significant regulatory action” as defined in section 3(f) of

Executive Order 12866; (3) will have a significant economic impact on a substantial number of small entities; (4) will not create unnecessary obstacles to the foreign commerce of the United States; and (5) will not impose an unfunded mandate on State, local, or tribal governments, or on the private sector.

A. Regulatory Impact Analysis

In summary, the FAA estimated quantified annualized costs of $51.3 million using a 7 percent discount rate over a 5-year period of analysis. The costs represent the value of resources needed for regulated entities to develop and implement a safety management system. Mitigation costs to reduce or eliminate any hazards identified by an SMS, which are yet to be identified and thus unknown, are not included in the analysis. The FAA evaluated benefits qualitatively. The benefits are the value that would result from avoided fatalities, serious injuries, aircraft damage, and investigation costs.

1. Baseline for the Analysis

The baseline for the analysis of incremental benefits and costs of the proposed rule includes existing regulations and standards, existing practices, affected entities, and current risks of aircraft accidents and incidents. The FAA already requires part 121 operators to implement an SMS. The FAA also provides a voluntary SMS program for certificate holders under parts 21, 135, and 145. The SMS voluntary program is based on the requirements in existing part 5. There are over 200 participants in the voluntary program, including 40 participants in active conformance (full implementation of the certificate holder's SMS).[72] In addition, some part 121 operators have covered their part 135 operations and part 145 repair station services under their SMS. Finally, certain aircraft design and production approval holders and certificated repair

[72] *See* FAA Order 8900.1, Volume 17, Chapter 3, "Safety Management System Voluntary Program"

stations subject to EASA requirements will be required to develop and implement an SMS under that agency's SMS requirements.[73]

The FAA estimated that the proposed rule would apply to approximately 65 holders of both a type certificate and a production certificate for the same product. Also, there are approximately 1,907 part 135 operators that would be required to implement an SMS, which includes 272 entities that also hold an LOA to conduct commercial air tours under § 91.147. Additionally, there are 694 LOA holders operating under § 91.147 that are not associated with a part 135 certificate that would be required to implement an SMS under the proposed rule.

With respect to aircraft accidents, although the risk associated with regularly scheduled commercial air carriers under part 121 in the United States is low, there have been accidents involving fatalities and serious injuries. Under part 135, there has been an average of 43 accidents and 24 fatalities annually from 2015 to 2019, mostly within on-demand operations. There have also been recent fatal accidents of air tours conducted under § 91.147, an average of 7 accidents and 3 fatalities annually from 2015 to 2019.

2. Benefits

The benefits of the proposed rule would include the value of the reductions in safety risks associated with requiring additional entities to implement SMS. The information available for estimating such benefits includes data on accident consequences, accident investigation reports identifying the probable causes, and information on the values associated with avoiding consequences. The FAA relied largely on aviation accident data from the NTSB for the years 2015 to 2019 (the most recent available at the time of the analysis) and standard values for

[73] EASA adopted a rule to require SMS for maintenance organizations (part 145), which will become applicable on December 2, 2022. EASA also adopted a rule for design and production organizations (part 21), which will become applicable on March 7, 2023.

estimating avoided consequences including fatalities, serious injuries, property damage, and investigation costs.

The FAA evaluated benefits by determining annual average aviation accident consequences, the share of those consequences that could be mitigated under the proposed rule, and probability of mitigation. The FAA determined the share of consequences that could potentially be mitigatable by the rule by looking at the causes of individual accidents. Requiring certain aircraft design and production approval holders (14 CFR part 21) to implement SMS has the potential to mitigate accidents in operations conducted under 14 CFR parts 121, 135, and 91. Requiring part 135 operators and § 91.147 LOA holders to implement SMS has the potential to mitigate accidents in operations under part 135 and § 91.147. The probability of mitigation is uncertain.

The FAA used accident data from 2015 to 2019, focusing on those involving fatalities and serious injuries (1,954 out of 6,718 accidents across parts 91, 121, and 135). The FAA identified 11 accidents of which the risk could have been mitigated by requiring SMS for part 21 approval holders. The FAA also identified 35 part 135 accidents and 4 § 91.147 accidents of which the risk could have been mitigated by the proposed rule. There are a number of uncertainties in the analysis, including that not all accidents indicative of the potential for benefits from the proposed rule may have been identified. In particular, requiring SMS for certain part 21 design and production approval holders will have beneficial impacts beyond domestic operations (i.e., to citizens of foreign countries).

3. Costs

To estimate compliance costs, the FAA developed average onetime SMS development costs and recurring SMS implementation costs. Then, the FAA extrapolated these costs to

entities that would fall under the expanded applicability of part 5 who would not already be required to implement an SMS and are not already implementing an SMS voluntarily. To develop these estimates, the FAA conducted limited outreach to industry participants in the FAA's voluntary SMS program to obtain data on implementation costs. In order to properly scale costs for company size, the FAA calculated these costs per employee for certificate holders under part 21 and per aircraft for operators under part 135 and § 91.147. The FAA then extrapolated the costs based on number of employees or number of aircraft. The FAA estimated only minor costs for entities that have already implemented an SMS voluntarily.

There are a number of uncertainties in the analysis, including that costs are based on a small sample. As a result, costs could be lower or higher than estimated. The outreach indicated a high level of variability depending on the individual circumstances of the entity (e.g., existing processes and capabilities). For this analysis, the FAA intends for the estimates to represent an average across entities.

4. Summary

Table 2 provides a summary of annualized and present value costs using 3 percent and 7 percent discount rates.

Table 2. Summary of Costs (Millions $2021)

Category	Annualized	Present Value (5 Years)
3% Discount Rate		
Part 21	$5.0	$22.8
Part 135	$39.5	$180.8
§ 91.147	$7.2	$33.0
Part 121	$0.1	$0.3
Total	$51.7	$236.9
7% Discount Rate		
Part 21[1]	$5.0	$20.6
Part 135	$39.1	$160.4
§ 91.147	$7.1	$29.3
Part 121	$0.1	$0.3
Total	$51.3	$210.6
n.e. = not estimated		

Table 2. Summary of Costs (Millions $2021)

Category	Annualized	Present Value (5 Years)
1. Based on quantified impacts. Excludes costs of mitigation, which FAA was unable to estimate.		

Considering particular uncertainties associated with estimating benefits (e.g., SMS effectiveness), the FAA estimated the number of accident consequences (fatalities, serious injuries, and destroyed airplanes) that would have to be avoided for benefits to equal costs. These estimates are based on the estimated costs if mitigation costs are minimal. Although mitigation costs are not included, neither are cost savings, such as from potential efficiency gains. For example, SMS can result in doing things differently but not always more costly.

However, the breakeven analysis is limited for providing insight on the relationship of benefits and costs because net benefits will also depend on the magnitude of mitigation costs, which have not been quantified due to lack of data. Therefore, the FAA also calculates the breakeven level of consequences for an illustrative example of mitigation costs equal to 25 percent of compliance costs. Avoided consequences would need to be higher if mitigation costs are greater than 25 percent of compliance costs. The FAA requests comment and data on the costs of mitigations that could have prevented the accidents described in the analysis.

The breakeven analysis suggests that the proposed rule would break even, across all parts, if an average of four fatalities are avoided annually (5 fatalities in the example assuming mitigation costs are 25 percent of compliance costs). Requiring SMS for certain part 21 design and production approval holders would break even if an average of four serious injuries are avoided annually (5 serious injuries assuming mitigation costs are 25 percent of compliance costs). The SMS requirements for part 135 operators would break even if an average of 3 fatalities are avoided annually (4 fatalities assuming mitigation costs are 25 percent of compliance costs). The SMS requirements for § 91.147 LOA holders would break even if an

average of 1 fatality is avoided annually (1 fatality also assuming mitigation costs are 25 percent of compliance costs). The benefits of the proposed rule could also equal costs with other combinations of avoided accident consequences.

5. Regulatory Alternatives

The FAA considered two alternatives to the proposed rule. Each proposed alternative would change the applicability of the requirements for an SMS:

- Alternative 1: Extend applicability of part 5 to include most design and production approval holders under part 21, with some exceptions.
- Alternative 2: Exclude from the applicability of part 5 the part 135 operators that use only one pilot-in-command in their operations and the § 91.147 LOA holders that conduct fewer than 100 flights per year.

The FAA considered an alternative to the proposed part 21 applicability based on recommendations from a part 21 SMS Aviation Rulemaking Committee. Under Alternative 1, the SMS requirements would apply beyond holders of both a type and production certificate for the same product and would include most design and production approval holders. This alternative would exclude design and production approval holders of products, articles, or changes to existing type certificated products that are not typically used for carrying passengers or property for compensation or hire. Also, as part of this alternative, the FAA considered a process that would allow design and production approval holders to apply to be excluded from SMS requirements if their article or approved product alteration would have little or no effect on the continued safe flight or landing of the aircraft. Under Alternative 1, the FAA estimated that over 3,000 additional entities would be required to implement SMS. The FAA also estimated that

over 3,000 additional entities (not associated with the entities in the previous sentence) would likely apply for an exception from the SMS requirements.

Alternative 1 would increase benefits through SMS implementation by the approximately 3,000 entities who design or produce certain safety-critical parts under any design or production approval. The alternative would also hold entities who design and produce interchangeable safety-critical parts to the same SMS standard required of entities holding both a type certificate and a production certificate for the same product. However, as of the date of this analysis, the FAA was not able to estimate these risks or benefits due to a lack of specific data and lack of certainty at this time.

The FAA estimated that costs could be $39.4 million for Alternative 1, using a number of assumptions because the agency does not have information for these entities on the size of their aviation design and production processes. The costs would include SMS development and implementation costs, application costs for an exception to implementing SMS, and FAA review and approval costs. Compared to the proposed rule, the increased costs would be approximately $34.4 million (annualized using a 7% discount rate).

The FAA considered an alternative for part 135 and § 91.147 that would limit the number of small operators affected. Under Alternative 2, the FAA considered excluding from the applicability of part 5 the part 135 operators that use only one pilot-in-command in their operations and the § 91.147 LOA holders that conduct fewer than 100 flights per year. The FAA estimated that 1,313 part 135 operators would be affected under Alternative 2 compared to 1,907 under the proposed rule. The FAA does not have data on the number of § 91.147 LOA holders that conduct less than 100 flights per year. However, for this analysis, the FAA used LOA holders with one registered aircraft as an estimate of LOA holders that would not be affected

under the alternative. The FAA estimated that 321 § 91.147 LOA holders would be affected under Alternative 2 compared to 694 under the proposed rule.

The reduced applicability under Alternative 2 would lower both the benefits and costs. For part 135, costs would be $3.4 million lower compared to the proposed rule. For § 91.147, costs would be $1.7 million lower compared to the proposed rule. With respect to benefits, the FAA identified five potentially mitigatable accidents involving operators that use only one pilot-in-command and one potentially mitigatable accident involving a § 91.147 LOA holder with one aircraft registration. These types of operators would not be required to implement an SMS.

Table 3 provides a summary of the analysis of alternatives. The uncertainty associated with the estimation of benefits and costs of the proposal also applies to the estimates of the alternatives. Section V.A., Applicability, of the preamble to the proposed rule provides the agency's rationale for selecting the proposed option.

Table 3. Summary of Alternatives Analysis

Scenario	Change from Proposed Rule		
	Affected Entities	**Benefits**	**Costs (Millions)**
Alternative 1: Extend applicability to include additional design and production approval holders under part 21	SMS: +3,000 Exception: +3,000	Data not available to quantify change in risk	+$34.4
Alternative 2: Limit applicability for certain part 135 operators (exclude operators that use only one pilot-in-command) and § 91.147 LOA holders (exclude fewer than 100 flights per year)	Part 135: -594 § 91.147: -373	Lower (would not mitigate risks identified in 5 part 135 and 1 § 91.147 accidents)	Part 135: -$3.4 § 91.147: -$1.7

Please see the RIA available in the docket for the more details.

B. Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) of 1980, Public Law 96–354, 94 Stat. 1164 (5 U.S.C. 601–612), as amended by the Small Business Regulatory Enforcement Fairness Act of

1996 (Public Law 104–121, 110 Stat. 857, Mar. 29, 1996), and the Small Business Jobs Act of 2010 (Public Law 111–240, 124 Stat. 2504 Sept. 27, 2010), requires Federal agencies to consider the effects of the regulatory action on small business and other small entities and to minimize any significant economic impact. The term ‘‘small entities’’ comprises small businesses and not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000.

The FAA is publishing this Initial Regulatory Flexibility Analysis (IRFA) to aid the public in commenting on the potential impacts to small entities from this proposal. The FAA invites interested parties to submit data and information regarding the potential economic impact that would result from the proposal. The FAA will consider comments when making a determination or when completing a Final Regulatory Flexibility Analysis.

An IRFA must contain the following:

(1) A description of the reasons why the action by the agency is being considered;

(2) A succinct statement of the objective of, and legal basis for, the proposed rule;

(3) A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;

(4) A description of the projected reporting, recordkeeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;

(5) An identification, to the extent practicable, of all relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule; and

(6) A description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes, and which minimize any significant economic impact of the proposed rule on small entities.

1. Reasons the Action is Being Considered

As described elsewhere in this preamble, the proposed ruled addresses a Congressional mandate as well as recommendations from the NTSB. Additionally, the proposed rule would move the United States closer to harmonizing with ICAO Annex 19. The FAA intends for the proposed rule to improve aviation safety by requiring organizations to implement a proactive approach to managing the safety performance of an organization. The successful use of SMS by part 121 operators suggests potential benefits of expanding SMS into other sectors of the aviation system.

2. Objectives and Legal Basis of the Proposed Rule

The objective of implementing an SMS is to proactively identify hazards, assess the risk of those hazards, and apply effective mitigations before an accident or incident occurs. The proposed rule would expand the use of SMS in the aviation industry by making the SMS requirements applicable to part 135 operators, § 91.147 LOA holders, and certain part 21 design and production approval holders. The proposed rule would also increase the opportunities for communication of identified hazards between part 119 certificate holders, § 91.147 LOA holders, and manufacturers. The proposed rule is therefore intended to increase the overall safety of the national airspace system. Additionally, the proposed rule would fulfill the statutory mandate in section 102 of ACSAA. Section II of this preamble describes the FAA's authority to issue rules on aviation safety under Title 49 U.S.C. and the Congressional mandate in section 102 of ACSAA.

3. Description and Estimate of the Number of Small Entities

FAA used the definition of small entities in the RFA for this analysis. The RFA defines small entities as small businesses, small governmental jurisdictions, or small organizations. In 5 U.S.C. section 601(3), the RFA defines "small business" to have the same meaning as “small business concern” under section 3 of the Small Business Act. The Small Business Act authorizes the Small Business Administration (SBA) to define "small business" by issuing regulations.

SBA has established size standards for various types of economic activities, or industries, under the North American Industry Classification System (NAICS). These size standards generally define small businesses based on the number of employees or annual receipts. Table 4 shows the SBA size standards for example industrial classification codes relevant for the proposed rule. Note that the SBA definition of a small business applies to the parent company and all affiliates as a single entity.

Table 4. Small Business Size Standards: Air Transportation

NAICS Code	Description	Size Standard
336411	Aircraft Manufacturing	1,500 employees
336412	Aircraft Engine and Engine Parts Manufacturing	1,500 employees
336413	Other Aircraft Part and Auxiliary Equipment Manufacturing	1,250 employees
481111	Scheduled Passenger Air Transportation	1,500 employees
481112	Scheduled Freight Air Transportation	1,500 employees
481211	Nonscheduled Chartered Passenger Air Transportation	1,500 employees
481212	Nonscheduled Chartered Freight Air Transportation	1,500 employees
481219	Other Nonscheduled Air Transportation	$16.5 million
487990	Scenic and Sightseeing Transportation, Other	$8.0 million
NAICS = North American Industrial Classification System		

a. Part 21

As described in the RIA, the FAA estimated that there may be approximately 65 design or production approval holders under part 21 that may need to implement SMS under the proposed rule. Fifteen of these entities are already implementing SMS under the FAA’s voluntary program or are large businesses (based on publicly available information regarding

number of employees). Of the remaining 50 entities, 31 may meet the size standard for a small business in Aerospace Product and Parts Manufacturing (NAICS 33641)).

b. Part 135

Approximately 1,907 part 119 certificate holders operating under part 135 would need to implement SMS under the proposed rule. Internal FAA data indicate that all but three of these certificate holders have fewer than 1,500 employees. Thus, to the extent that the industrial classification of the parent company of these entities is scheduled passenger or freight, or nonscheduled chartered passenger or freight air transportation (NAICS 481111, 481112, 481211, or 481212), over 1,900 would be small businesses. Table 5 shows the distribution of certificate holders by total employment.

Table 5. Distribution of Part 135 Employment

Number of Employees	Number of Certificate Holders	Percent of Certificate Holders
1	292	15%
2-9	877	46%
10-19	275	14%
20-49	264	14%
50-99	106	6%
100-499	76	4%
500-999	13	1%
1000+	4	0%
Source: FAA data as of March 2021		

c. Section 91.147

Approximately 694 air tour operators would have to implement SMS under the proposed rule. To the extent that the industrial classification of the parent company of these entities is Scenic and Sightseeing Transportation, Other, the relevant size standard is $8.0 million. Internal FAA data does not include revenue or number of flights for these operations. However, 362 of these LOA holders have only one aircraft listed on the LOA. Many may meet the small business

size standard. The FAA requests data and information that may enable determination of whether these air tour operators would meet the SBA small size threshold.

4. Projected Reporting, Recordkeeping, and Other Compliance Requirements

Section V.C.4 of this preamble discusses the reporting requirements of the proposed rule. Affected entities who identify a hazard in their operating environment must provide notice of the hazard to the interfacing person or persons who would best be able to address the hazard or mitigate the risk.

Section V.C.5 of this preamble describes the recordkeeping requirements of the proposed rule. Affected entities must maintain records of the outputs of safety risk management and safety assurance processes for as long as they remain relevant to the operation. In addition, entities must retain outputs of safety assurance processes for a minimum of 5 years, SMS training records for as long as the individual is employed by the person, and communication records for a minimum of 24 months.

Recordkeeping and reporting requirements, like the rest of part 5, are scalable to a wide variety of business models and sizes, as discussed in Section V.F. of this preamble. As a result, entities could potentially accomplish the recordkeeping and reporting requirements through the use of existing personnel rather than require additional professional skills.

Section V.C of the preamble describes the primary requirements for an SMS, which include safety policy, safety risk management, safety assurance, and safety promotion, as well as documentation. As described in the RIA, the FAA estimated the cost of compliance with all the proposed requirements based on number of employees for part 21 certificate holders and based on fleet size for part 135 operators and § 91.147 LOA holders. Table 6 and Table 7 provide the results for example size categories and expressed as a percentage of overall average receipts

(using NAICS 336411 for part 21 and 336411 for part 135 as examples[74]). Not included in the costs are mitigation costs which are yet unknown. The RIA provides additional detail on the cost estimates.

Table 6. Example SMS Compliance Costs By Number of Employees: Part 21

Number of Employees	One-time Cost	Annual Cost	One-time Cost/Receipts[1]	Annual Cost/Receipts[1]
1-99	$7,500 - $26,050	$500 - $10,130	0.2% - 1.2%	0.1% - 0.1%
100-499	$26,320 - $131,320	$10,230 - $51,050	0.2% - 1.2%	0.1% - 0.5%
500-10,000	$131,580 - $2,631,590	$51,150 - $1,023,000	0.03 - 0.1%	0.01% - 0.04%
1. Source for receipts: 2017 County Business Patterns and Economic Census (https://www2.census.gov/programs-surveys/susb/tables/2017/us_state_naics_detailedsizes_2017.xlsx). Adjusted for inflation using the Consumer Price Index. Based on NAICS 336411.				

Table 7. Example SMS Compliance Costs By Number of Aircraft: Part 135 and 91.147

Number of Aircraft	One-time Cost	Annual Cost	One-time Cost/Receipts[1]	Annual Cost/Receipts[1]
1-9	$7,500 - $38,120	$4,380 - $39,420	0.1% - 0.7%	0.1% - 0.4%
10-49	$42,360 - $207,560	$43,800 - $214,640	0.1% - 0.9%	0.1% - 0.9%
50-99	$211,800 - $419,370	$219,020 - $433,670	0.2% - 0.9%	0.2% - 0.9%
100-500	$423,600 - $2,118,010	$438,050 - $2,190,230	0.2% - 0.3%	0.2% - 0.3%
1. Source for receipts: 2017 County Business Patterns and Economic Census (https://www2.census.gov/programs-surveys/susb/tables/2017/us_state_naics_detailedsizes_2017.xlsx). Adjusted for inflation using the Consumer Price Index. Based on NAICS 481111 and median number of employees per number of aircraft for part 135 operators.				

Total annualized costs (using a 7 percent discount rate) for small businesses may be in the range of $0.3 million for part 21 and $37.4 million for part 135. The FAA does not have data to identify § 91.147 LOA holders that may meet the size standard. However, total annualized costs for this sector are $7.1 million.

Although the proposed requirements are scalable to fit the size or complexity of the organization, any adverse impacts of compliance costs could disproportionately fall on small

[74] The ratios are similar using NACIS 336412 and 336413 for part 21 and 481112, 481113, 481211, 481212, and 481213 for part 135. For § 91.147, the FAA does not have number of employees associated with the number of aircraft on the LOA. However, assuming LOA holders of 1 and 2 registered aircraft have less than 5 employees, the ratios for one-time and annual costs as a percentage of inflation adjusted receipts in this smallest employment size category in NAICS 487990 would be 1.8% and 1.1%, respectively.

entities. Like large entities, small entities will likely pass the costs on in the form of price increases.

5. All Federal Rules That May Duplicate, Overlap, or Conflict

There are no relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule.

6. Significant Alternatives Considered

The FAA considered extending the applicability of part 5 to include most design and production approval holders under part 21, with some exceptions. Compared to the proposed option, the FAA estimated that more than an additional 3,000 entities would need to implement an SMS and more than 3,000 would likely apply for an exception under this alternative. To the extent that the industrial classification of these entities is in aircraft manufacturing, the industry data in Table 2 suggests that a large percentage are likely small businesses (i.e., given at least 92 percent of this sector meet the size standard).

The FAA considered excluding from the SMS certificate holders under part 135 that use only one pilot-in-command in their operations and § 91.147 LOA holders that conduct less than 100 flights per year. This alternative would reduce affected part 135 operators by 31 percent and § 91.147 LOA holders by 54 percent. For part 135, costs would be $3.4 million lower compared to the proposed rule. For § 91.147, costs would be $5.9 million lower compared to the proposed rule. However, the alternative would also reduce benefits. The FAA identified five potentially mitigatable accidents involving operators that use only one pilot-in-command and one potentially mitigatable accident involving a § 91.147 LOA holder with one aircraft registration. These types of operators would not be required to implement an SMS.

C. International Trade Impact Assessment

The Trade Agreements Act of 1979 (Public Law 96-39), as amended by the Uruguay Round Agreements Act (Public Law 103-465), prohibits Federal agencies from establishing standards or engaging in related activities that create unnecessary obstacles to the foreign commerce of the United States. Pursuant to these Acts, the establishment of standards is not considered an unnecessary obstacle to the foreign commerce of the United States, so long as the standard has a legitimate domestic objective, such as the protection of safety, and does not operate in a manner that excludes imports that meet this objective. The statute also requires consideration of international standards and, where appropriate, that they be the basis for U.S. standards. The FAA has assessed the potential effect of this rule and determined that it will improve aviation safety and does not exclude imports that meet this objective.[75] As a result, the FAA does not consider this rule as creating an unnecessary obstacle to foreign commerce.

D. Unfunded Mandates Assessment

Title II of the Unfunded Mandates Reform Act of 1995 (Public Law 104-4) requires each Federal agency to prepare a written statement assessing the effects of any Federal mandate in a proposed or final agency rule that may result in an expenditure of $100 million or more (in 1995 dollars) in any one year by State, local, and tribal governments, in the aggregate, or by the private sector; such a mandate is deemed to be a "significant regulatory action." The FAA currently uses an inflation-adjusted value of $165 million in lieu of $100 million. An unfunded mandate is a regulation that requires a State, local, or tribal government or the private sector to incur direct costs without the Federal government having first provided the funds to pay those

[75] The FAA notes that because this proposed rule would not apply to products where the state of manufacture is not the United States, aircraft manufacturers who are manufacturing abroad would not be required to have an SMS under part 5 but may have SMS requirements imposed by the state of manufacture.

costs. The FAA determined that the proposed rule will not result in the expenditure of $165,000,000 or more by State, local, or tribal governments in the aggregate, or the private sector, in any one year.[76] Therefore, the requirements of Title II of the Unfunded Mandates Reform Act of 1995 do not apply.

E. Paperwork Reduction Act

The Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)) requires that the FAA consider the impact of paperwork and other information collection burdens imposed on the public. According to the 1995 amendments to the Paperwork Reduction Act (5 CFR 1320.8(b)(2)(vi)), an agency may not collect or sponsor the collection of information, nor may it impose an information collection requirement unless it displays a valid Office of Management and Budget (OMB) control number.

This proposed rule contains new information collection requirements and amendments to the existing information collection requirements previously approved under OMB Control Number 2120-0675. As required by the Paperwork Reduction Act of 1995 (44 U.S.C. 3507(d)), the FAA has submitted these proposed information collection amendments to OMB for its review.

1. Summary:

In this rule, the FAA is proposing to require that all certificate holders operating under part 135, all LOA holders operating under § 91.147, and certain certificate holders under part 21 establish an SMS to improve safety for their operations, and to amend the requirements for certificate holders operating under part 121.[77] An SMS is a formalized approach to managing

[76] The Unfunded Mandates Reform Act of 1995 defines ''Federal private sector mandate'' as ''any provision in legislation, statute, or regulation that . . . would impose an enforceable duty upon the private sector . . . or would reduce or eliminate the amount of authorization of appropriations for Federal financial assistance that will be provided to the private sector for the purposes of ensuring compliance with such duty.'' Public Law 104–4 section 658 (1995).

[77] Proposed part 121 requirements would be amended in the corresponding OMB Control Number 2120-0675.

safety by developing an organization-wide safety policy, developing formal methods for identifying hazards, analyzing and mitigating risk, developing methods for ensuring continuous safety improvement, and creating organization-wide safety promotion strategies.

Under this proposed rule, certificate and authorization holders required to comply would be burdened with the following information collection activities:[78]

(1) Develop a system description - § 5.5(b)(1).

(2) Revise and maintain the system description to reflect changes in the organization - § 5.5(b)(2).

(3) Submit the revisions of the SMS to meet the requirements of §§ 5.5(b), 5.21(a)(7), 5.53(b)(5), 5.94, 5.95(c), and 5.97(d) for FAA-acceptance in a form and manner acceptable to the Administrator - § 5.7(a)(2).

(4) Submit a statement of compliance in a form and manner acceptable to the Administrator - § 5.7(b)(2) and § 5.9(a)(2).

(5) Submit an implementation plan in accordance with § 5.17of this subpart for FAA approval in a form and manner acceptable to the Administrator - § 5.11(b) and § 5.13(b)(2).

(6) Any person required to have an SMS under this part to have a safety policy - § 5.21(a).

(7) Any person that holds both a type certificate and a production certificate for the same product issued under part 21 of this chapter must submit a summary of the confidential employee reports received under § 5.71(a)(7) to the Administrator every 6 months - § 5.71(c).

[78] Proposed part 121 requirements not reflected in corresponding OMB Control Number 2120-0675 are system description and notification of hazards.

(8) If a person identifies a hazard in the operating environment, the person must provide notice of the hazard to the interfacing person or persons identified in the system description who, to the best of their knowledge, could address the hazard or mitigate the risk - § 5.94(a); any person required to have an SMS under this part to develop and maintain procedures for reporting and receiving hazard information- § 5.94(b).

(9) Any person required to have an SMS under this part to develop and maintain SMS documentation containing (a) safety policy, (b) SMS processes and procedures, (c) system description - § 5.95.

(10) Any person required to have an SMS under this part to maintain SMS records: (a) records of outputs of safety risk management processes for as long as the control remains relevant to the operation, (b) records of outputs of safety assurance processes for a minimum of 5 years, (c) records of all training provided under § 5.91 for each individual for as long as the individual is employed by the person, (d) records of all communications provided under § 5.93 or § 5.94 for a minimum of 24 consecutive calendar months - § 5.97.

2. Use:

The information collection will be used to provide a basis for the FAA's review during the development and implementing phases, used by the certificate or LOA holder in its SMS processes and procedures, and used to demonstrate compliance with the part 5 requirements.

Collection and analysis of safety data is an essential part of an SMS. Types of data to be collected, retention procedures, analysis processes, and organizational structures for review and evaluation will be documented in the SMS. These records will be used by a certificate holder or LOA holder in the operation of its SMS and to facilitate continuous improvement through

evaluation and monitoring. While this proposed rule does not require a certificate holder or LOA holder to submit these records to the FAA, it would require a certificate holder or LOA holder to make these records available upon request.

3. Respondents (including number of):

Table 8 provides the FAA's estimates of the number of respondents by affected entity category (by part 121 approval holders, part 135 operators, and § 91.147 LOA holders) that would be impacted by the paperwork requirements in this rule.

Table 8. Number of Respondents

Affected Entity Category	Number of Respondents
System description	
Part 21	65
Part 135	1,907
§ 91.147	694
Part 121	66
Total	2,732
Statement of compliance	
Part 135	1,907
§ 91.147	694
Part 121[1]	1
Total	2,602
Implementation plan	
Part 21	65
Safety policy	
Part 21	65
Part 135	1,907
§ 91.147	694
Total	2,666
Summary of employee reports	
Part 21	65
Notification of hazards	
Part 21	65
Part 135	1,907
§ 91.147	694
Part 121	66
Total	2,732
SMS documentation	
Part 21	65
Part 135	1,907
§ 91.147	694
Total	2,666
SMS records	

Table 8. Number of Respondents

Affected Entity Category	Number of Respondents
Part 21	65
Part 135	1,907
§ 91.147	694
Total	2,666
1. Estimate based on one new 121 operator over last 3 years. Not applicable to existing 121 operators.	

4. Frequency:

The frequency of new information collection requirements and amendments to the existing information collection requirements is shown below in Table 13 with the annual burden estimate for each.

5. Annual Burden Estimate:

The FAA estimated the paperwork burden for up to 2,732 certificate and approval holders impacted by the rule as shown below in Table 9.

Table 9. Paperwork Burden

Category	Number of Respondents	Frequency of Response[1]	Total Number of Responses	Burden Hours[2]	Costs (Millions)[3]
System Description					
Part 21	65	1	65	520	$0.05
Part 135	1,907	1	1,907	15,256	$1.36
§ 91.147	694	1	694	5,552	$0.49
Part 121	66	1	66	528	$0.05
Total	2,732	NA	2,732	21,856	$1.94
Statement of compliance					
Part 135	1,907	3	5,721	61,024	$5.43
§ 91.147	694	3	2,082	22,208	$1.98
Part 121	1	3	3	32	$0.00
Total	2,602	NA	7,806	83,264	$7.41
Implementation plan					
Part 21	65	3	195	2,080	$0.19
Safety policy					
Part 21	65	1	65	260	$0.02
Part 135	1,907	1	1,907	7,628	$0.68
§ 91.147 LOA	694	1	694	2,776	$0.25
Total	2,666	NA	2,666	10,664	$0.94
Summary of employee reports					
Part 21	65	6	390	1,560	$0.14
Notification of hazards					

Table 9. Paperwork Burden

Category	Number of Respondents	Frequency of Response[1]	Total Number of Responses	Burden Hours[2]	Costs (Millions)[3]
Part 21	65	3	195	1,560	$0.14
Part 135	1,907	3	5,721	45,768	$4.07
§ 91.147	694	3	2,082	16,656	$1.48
Part 121	66	3	198	1,584	$0.14
Total	2,732	NA	8,196	65,568	$5.83
SMS documentation					
Part 21	65	3	195	2,080	$0.19
Part 135	1,907	3	5,721	61,024	$5.43
§ 91.147	694	3	2,082	22,208	$1.98
Total	2,666	NA	7,998	85,312	$7.59
SMS records					
Part 21	65	3	195	1,560	$0.14
Part 135	1,907	3	5,721	45,768	$4.07
§ 91.147	694	3	2,082	16,656	$1.48
Total	2,666	NA	7,99822,791	63,984	$5.69

NA = not applicable
1. Frequency over three-year period.
2. Calculated as number of respondents × hours per respondent.
3. Calculated as burden hours × average labor rate including benefits. The FAA used an average wage including benefits of $88.97, which is the mean average wage for aerospace engineers ($59.12) divided by the percent of total employer costs of employee compensation represented by wages (66%) to account for benefits (34%). Wages and benefits information available at: https://www.bls.gov/oes/current/oes172011.htm and https://www.bls.gov/news.release/ecec.t04.htm#ect_table4.f.1.

Table 10 provides a summary of the implied annual responses and burden (total divided by three).

Table 10. Summary of Annual Burden[1]

Category	Reporting	Recordkeeping	Disclosure
System Description			
# of respondents	911	0	0
# of responses per respondent	0.3	0	0
Time per response (hours)	3	0	0
Total # of responses	911	0	0
Total burden (hours)	7,285	0	0
Statement of compliance			
# of respondents	2,602	0	0
# of responses per respondent	1	0	0
Time per response (hours)	10.7	0	0
Total # of responses	2,602	0	0
Total burden (hours)	27,755	0	0
Implementation plan			
# of respondents	65	0	0
# of responses per respondent	1	0	0
Time per response (hours)	10.7	0	0

Table 10. Summary of Annual Burden[1]

Category	Reporting	Recordkeeping	Disclosure
Total # of responses	65	0	0
Total burden (hours)	693	0	0
Safety policy			
# of respondents	0	889	0
# of responses per respondent	0	0.3	0
Time per response (hours)	0	1.3	0
Total # of responses	0	889	0
Total burden (hours)	0	3,555	0
Summary of employee reports			
# of respondents	65	0	0
# of responses per respondent	2	0	0
Time per response (hours)	4	0	0
Total # of responses	130	0	0
Total burden (hours)	520	0	0
Notification of hazards			
# of respondents	2,732	0	0
# of responses per respondent	1	0	0
Time per response (hours)	8	0	0
Total # of responses	2,732	0	0
Total burden (hours)	21,856	0	0
SMS documentation			
# of respondents	0	2,666	0
# of responses per respondent	0	1	0
Time per response (hours)	0	10.7	0
Total # of responses	0	2,666	0
Total burden (hours)	0	28,437	0
SMS records			
# of respondents	0	2,666	0
# of responses per respondent	0	1	0
Time per response (hours)	0	8	0
Total # of responses	0	2,666	0
Total burden (hours)	0	21,328	0

The agency is soliciting comments to—

(a) Evaluate whether the proposed information requirement is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(b) Evaluate the accuracy of the agency's estimate of the burden;

(c) Enhance the quality, utility, and clarity of the information to be collected; and

(d) Minimize the burden of collecting information on those who are to respond, including by using appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

Individuals and organizations may send comments on the information collection requirement to the address listed in the ADDRESSES section at the beginning of this preamble by [***Insert date 60 days after date of publication in the Federal Register]***. Comments also should be submitted to the Office of Management and Budget, Office of Information and Regulatory Affairs, Attention: Desk Officer for FAA, New Executive Building, Room 10202, 725 17th Street, NW, Washington, DC 20053.

F. International Compatibility

ICAO Annex 19 establishes an SMS Framework for managing aviation safety risk, as well as identifies the types of organizations that should implement an SMS. This rulemaking would move the United States closer to harmonization with ICAO Annex 19. The proposed rule would align with Annex 19 by requiring the following service providers to implement SMS: 1) commercial operators of airplanes or helicopters, and 2) certain organizations responsible for the design or manufacture of products. The FAA has already implemented SMS across the FAA's Air Traffic Organization.[79] Additionally, the FAA is proposing SMS implementation for certain airports through a separate rulemaking effort. Both of these efforts bring us closer to alignment with ICAO Annex 19 because Annex 19 also includes air traffic service providers and airports.

When part 5 was originally constructed, it was based on the SMS framework in ICAO Annex 19. Part 5 currently also includes requirements for recordkeeping, which are not part of

[79] More information regarding the Air Traffic Organization's SMS is available at: https://www.faa.gov/about/initiatives/sms/specifics_by_aviation_industry_type/air_traffic.

the ICAO's SMS framework. However, recordkeeping requirements facilitate FAA's oversight functions, and they assist the person implementing SMS in demonstrating compliance with the regulations. In addition, the proposed rule would require the use of a system description and the communication of information regarding safety hazards. While these requirements are not in the ICAO's SMS framework, the FAA believes that they are beneficial to the persons implementing SMS and consistent with ICAO's intent as ICAO notes in Annex 19 that other organizations that interface with a product or service provider can make a significant contribution to the safety of its products or services.

1. Air Carriers and Operators

The ICAO SMS requirements for commercial operators are contained in Annex 19, but Annex 6 defines the scope of the requirements. Part I of Annex 6 covers international commercial operations in airplanes. This part of Annex 6 makes no distinction in its requirements on the basis of an organization's size. The Annex applies to all commercial air transportation operations in airplanes. In the United States, this includes operators certificated under both part 121 and part 135. Part III of Annex 6 covers commercial air transportation operators of helicopters. In the United States, these operations are conducted under part 135. Annex 6, part I addresses international flight operations; in the United States, these international flights are operated under either part 121 or part 135. The FAA currently requires part 121 operators to implement and maintain an SMS, and this proposed rule would extend the requirement for an SMS to part 135 operators, further harmonizing the United States with ICAO's SMS requirements.

2. Aircraft Design and Manufacturing

ICAO Annex 19 requires SMS for organizations responsible for the type design or manufacture of aircraft, engines, or propellers. This proposal extends part 5 applicability to holders of both a TC and a PC for the same product, applicants for a PC where the applicant is the holder or licensee of the TC, and holders of a TC who allow other persons to use their TC to obtain a PC. This proposal would bring the United States into closer harmonization with the ICAO Annex 19 SMS requirement for certain organizations responsible for design or manufacturing of products.

3. Development and Implementation of SMS by Foreign Jurisdictions

Many States have made significant progress in developing, implementing, and maintaining requirements for SMS, aligned with ICAO's SMS framework, including certificating authorities in Europe (EASA), Canada, Brazil, the United Kingdom, Japan, and Australia. Of those authorities, most have SMS requirements for international commercial operations, and some have SMS requirements for design and manufacturing. Most that do not have SMS requirements for design and manufacturing plan to adopt such requirements in the future. Several States also have SMS requirements for other operations in the aviation system: airports, maintenance organizations, training organizations, international general aviation operations, and for safety data collection, protection, and exchange.

Harmonization of requirements, to the extent feasible, is important to reduce the regulatory burden on those holding certificates or authorizations from multiple States. The FAA continues to work with other States to harmonize SMS requirements. The proposed rule aligns with sections of the ICAO SMS framework and furthers harmonization with other States requiring SMS. United States-based certificate holders providing products or services

internationally could be limited or asked to provide duplicative information to other States' approval authorities to show compliance with in-country SMS requirements. If adopted as proposed, the rule would reduce the regulatory burden on those holding certificates or authorizations across multiple States.

4. Other FAA support for harmonization and standards development

The FAA is a founding member and active participant in the Safety Management International Collaboration Group, a group representing 18 international regulatory authorities. The primary purpose of the Safety Management International Collaboration Group is to promote international harmonization of SMS regulations, guidance material, and oversight strategies. The FAA is also an active participant on the ICAO Safety Management Panel.

The FAA also participated with the Aerospace Industries Association to develop an international industry standard for SMS: "Implementing a Safety Management System in Design, Manufacturing and Maintenance Organizations." This Standard is intended to enable the aviation industry to implement an SMS consistent with the ICAO Annex 19 "Safety Management" Second Edition, Appendix 2.

G. Environmental Analysis

FAA Order 1050.1F identifies FAA actions that are categorically excluded from preparation of an environmental assessment or environmental impact statement under the National Environmental Policy Act in the absence of extraordinary circumstances. The FAA has determined this rulemaking action qualifies for the categorical exclusion identified in paragraph 5-6.6f for regulations and involves no extraordinary circumstances.

H. Regulations Affecting Intrastate Aviation in Alaska

Section 1205 of the FAA Reauthorization Act of 1996 (110 Stat. 3213) requires the Administrator, when modifying regulations in 14 CFR in a manner affecting intrastate aviation in Alaska, to consider the extent to which Alaska is not served by transportation modes other than aviation, and to establish appropriate regulatory distinctions. Because this proposed rule would apply to: (1) any person authorized to conduct operations under part 135, (2) any person operating under an LOA issued under § 91.147, and (3) holders of both a TC and a PC for the same product, as well as applicants for a PC where the applicant is the holder or licensee of the TC, it could, if adopted, affect intrastate aviation in Alaska. The use of SMS would improve aviation safety in Alaska. The FAA analyzed NTSB part 135 accident data from 2015 to 2019 and found that of all part 135 air carrier accidents studied, 43 percent of these accidents occurred in Alaska. Because implementation of SMS can be scaled to the size and complexity of an organization, SMS requirements would not be overly burdensome for smaller part 135 operators. The increase in safety benefits to intrastate operations in Alaska would positively impact air commerce in Alaska with the same requirements applicable to every organization under part 5. The FAA specifically requests comments on whether there is justification for applying the proposed rule differently in intrastate operations in Alaska.

VIII. Executive Order Determinations

A. Executive Order 13132, Federalism

The FAA has analyzed this proposed rule under the principles and criteria of Executive Order 13132, Federalism. The agency has determined that this action would not have a substantial direct effect on the States, or the relationship between the Federal Government and

the States, or on the distribution of power and responsibilities among the various levels of government, and, therefore, would not have Federalism implications.

B. Executive Order 13211, Regulations that Significantly Affect Energy Supply, Distribution, or Use

The FAA analyzed this proposed rule under Executive Order 13211, Actions Concerning Regulations that Significantly Affect Energy Supply, Distribution, or Use (May 18, 2001). The agency has determined that it would not be a "significant energy action" under the executive order and would not be likely to have a significant adverse effect on the supply, distribution, or use of energy.

C. Executive Order 13609, International Cooperation

Executive Order 13609, Promoting International Regulatory Cooperation, promotes international regulatory cooperation to meet shared challenges involving health, safety, labor, security, environmental, and other issues and to reduce, eliminate, or prevent unnecessary differences in regulatory requirements. The FAA has analyzed this action under the policies and agency responsibilities of Executive Order 13609, and has determined that this action may improve regulatory cooperation by moving FAA requirements for SMS closer to ICAO Standards and Recommended Practices that other States are adopting or considering adopting.

IX. Additional Information

A. Comments Invited

The FAA invites interested persons to participate in this rulemaking by submitting written comments, data, or views. The agency also invites comments relating to the economic, environmental, energy, or federalism impacts that might result from adopting the proposals in this document. The most helpful comments reference a specific portion of the proposal, explain

the reason for any recommended change, and include supporting data. To ensure the docket does not contain duplicate comments, commenters should send only one copy of written comments, or if comments are filed electronically, commenters should submit only one time.

The FAA will file in the docket all comments it receives, as well as a report summarizing each substantive public contact with FAA personnel concerning this proposed rulemaking. Before acting on this proposal, the FAA will consider all comments it receives on or before the closing date for comments. The FAA will consider comments filed after the comment period has closed if it is possible to do so without incurring expense or delay. The agency may change this proposal considering the comments it receives.

B. Confidential Business Information

Confidential Business Information (CBI) is commercial or financial information that is both customarily and actually treated as private by its owner. Under the FOIA (5 U.S.C. 552), CBI is exempt from public disclosure. If your comments responsive to this NPRM contain commercial or financial information that is customarily treated as private, that you actually treat as private, and that is relevant or responsive to this NPRM, it is important that you clearly designate the submitted comments as CBI. Please mark each page of your submission containing CBI as "PROPIN." The FAA will treat such marked submissions as confidential under the FOIA, and they will not be placed in the public docket of this NPRM. Submissions containing Confidential Business Information should be sent to the person in the **FOR FURTHER INFORMATION CONTACT** section of this document. Any commentary that the FAA receives which is not specifically designated as CBI will be placed in the public docket for this rulemaking.

C. Request for Comments

In the preamble under Section V., Discussion of the Proposal, the FAA requested comments pertaining to specific issues. To facilitate submission of public comments, the specific requests for comments are also listed below. When responding to the comments, please identify the issue by using the question numbers used here:

(1) The FAA requests comment regarding how SMS might present unique opportunities or challenges for smaller organizations.

(2) The FAA is aware that there are 135 operators that use only one pilot-in-command in their operations, as well as § 91.147 LOA holders with low flight volume. The FAA seeks supporting information and data regarding whether this applicability should be limited to a certain subset of part 135 operators and § 91.147 LOA holders, and if so, how? If the applicability is limited to a particular subset of part 135 operators and § 91.147 LOA holders, please provide any recommendations for alternatives that would achieve the same safety objectives as SMS for those operators that would not be included under SMS.

(3) The FAA considers that there may be safety benefits to applying SMS to a larger portion of the aviation industry that could lead to safety improvements in the aviation ecosystem as a whole. The FAA invites comments as to whether part 5 should apply to all holders of a TC, PC, supplemental type certificates, technical standard order authorizations, or parts manufacturer approvals. The FAA requests that comments specify whether any exceptions should be made in the event that the FAA extends part 5 to these design and production approval holders, and what those exceptions should entail. The FAA further requests information and data related to the safety benefits or impact of applying part 5 to additional design and production approval holders beyond the applicability in this proposed rule.

(4) Under § 5.15(a), the FAA is proposing that any person that holds a TC for a product who allows another person to use the TC to manufacture a product under a PC to be required to submit an implementation plan for FAA approval in a form and manner acceptable to the Administrator no later than December 27, 2024, and implement the SMS in accordance with the FAA-approved plan no later than December 27, 2025. These proposed compliance dates are consistent with the proposal under § 5.11 for holders with a TC and a PC for the same product issued under part 21. The FAA invites comments about whether the FAA should extend the compliance timelines for persons who license their TC to other persons and, if so, what timelines the FAA should establish. The FAA requests that responsive comments include the commenter's rationale.

(5) The FAA seeks comment on whether organizations can share information about hazards without disclosing proprietary information. The FAA also seeks comment on whether the holder of the proprietary information would be in the best position to address the hazard. Please provide examples of any situations in which the holder of proprietary information would not be able to share information about a hazard without disclosing that proprietary information

(6) The FAA seeks comments regarding the Annual Burden Estimate for the Paperwork Reduction Act to—

(a) Evaluate whether the proposed information requirement is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility;

(b) Evaluate the accuracy of the agency's estimate of the burden;

(c) Enhance the quality, utility, and clarity of the information to be collected; and

(d) Minimize the burden of collecting information on those who are to respond, including by using appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology.

(7) Is there data or other evidence of the effectiveness of SMS in mitigating accidents and incidents?

(8) Appendix A of the RIA lists the accidents that inform the RIA and includes the FAA's assessment of the effectiveness of SMS mitigating the accident as well as the FAA's rationale:

(a) Has the FAA accurately estimated the most likely effectiveness of mitigation of any specific accidents through the proposed rule? Please provide any data or analysis to support your assessment.

(b) Does the FAA's rationale accurately assess how the use of an SMS would potentially mitigate the hazards that caused the accidents?

(c) What would be a reasonable intervention to mitigate the specific hazards identified, and what would be a reasonable estimation for the cost of the intervention or mitigation? Please provide data or analysis to support your response.

(d) Are there additional accidents or incidents that SMS could have meaningfully mitigated?

(9) The FAA seeks comments and information regarding expanding the applicability of part 5 in the future. Should the FAA consider a future rulemaking project to expand the applicability of part 5 to include repair stations certificated under part 145? Repair stations perform a wide range of repair and maintenance work on an equally wide range of aircraft and components. Some repair stations do not perform work on aircraft

used for passenger-carrying operations. Should the FAA consider applying part 5 to all certificated part 145 repair stations? Should applicability be limited to a subset of part 145 repair stations? The FAA seeks information and supporting data regarding how the applicability should be limited to a subset (i.e., to which repair stations should part 5 be applicable).

D. Availability of Rulemaking Documents

An electronic copy of rulemaking documents may be obtained from the Internet by—

1. Searching the Federal eRulemaking Portal at www.regulations.gov;
2. Visiting the FAA's Regulations and Policies Web page at www.faa.gov/regulations_policies/; or
3. Accessing the Government Printing Office's Web page at www.GovInfo.com.

Copies may also be obtained by sending a request to the Federal Aviation Administration, Office of Rulemaking, ARM-1, 800 Independence Avenue SW, Washington, DC 20591, or by calling (202) 267-9677. Commenters must identify the docket or notice number of this rulemaking.

All documents the FAA considered in developing this proposed rule, including economic analyses and technical reports, may be accessed from the Internet through the Federal eRulemaking Portal referenced in item (1) above.

List of Subjects

14 CFR Part 5

Air carriers, Aircraft, Airmen, Aviation safety, Reporting and recordkeeping requirements, Safety, Transportation.

14 CFR Part 21

Aircraft, Aviation safety, Exports, Imports, Reporting and recordkeeping requirements.

14 CFR Part 91

Air carriers, Air taxis, Aircraft, Airmen, Aviation safety, Charter flights, Reporting and recordkeeping requirements.

14 CFR Part 119

Administrative practice and procedure, Air carriers, Aircraft, Aviation safety, Charter flights, Reporting and recordkeeping requirements.

14 CFR Part 121

Air carriers, Aircraft, Aviation safety, Charter flights, Reporting and recordkeeping requirements, Safety, Transportation.

14 CFR Part 135

Air taxis, Aircraft, Airmen, Aviation safety, Reporting and recordkeeping requirements.

The Proposed Amendment

In consideration of the foregoing, the Federal Aviation Administration proposes to amend chapter I of title 14, Code of Federal Regulations as follows:

PART 5—SAFETY MANAGEMENT SYSTEMS

1. The authority citation for part 5 is revised to read as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40101, 40113, 40119, 41706, 44101, 44701-44702, 44705, 44709-44711, 44713, 44716-44717, 44722, 46105; Sec. 102, Pub. L. 116-260, 134 Stat. 2309; Sec 215, Pub. L. 111-216, 124 Stat. 2366.

2. Revise Subpart A to read as follows

Subpart A—General

Sec.

5.1 Applicability.

5.3 Definitions.

5.5 General requirements.

5.7 Requirements for domestic, flag, and supplemental operations.

5.9 Requirements for commuter and on-demand operations or passenger carrying flights for compensation or hire.

5.11 Requirements for certificate holders with both type certificates and production certificates.

5.13 Requirements for type certificate holders or licensees applying for a production certificate for the same product.

5.15 Requirements for type certificate holders who allow another person to use the type certificate to obtain a production certificate for the same product.

5.17 Implementation Plan.

Subpart A—General

§ 5.1 Applicability.

This part applies to all of the following:

(a) Any person that holds or applies for a certificate issued under part 119 of this chapter authorizing the person to conduct operations under part 121 of this chapter.

(b) Any person that holds or applies for a certificate issued under part 119 of this chapter authorizing the person to conduct operations under part 135 of this chapter.

(c) Any person that holds or applies for a Letter of Authorization issued under § 91.147 of this chapter.

(d) Any person that holds both a type certificate and a production certificate issued under part 21 of this chapter for the same product.

(e) Any person who holds a production certificate under part 21 for a product for which the person is a licensee of the type certificate.

(f) Any person who applies for a production certificate under part 21 for a product for which the person is the holder or licensee of the type certificate.

(g) Any person who holds a type certificate under part 21 for a product who allows another person to use the type certificate to manufacture the same product under a production certificate.

§ 5.3 Definitions.

Hazard means a condition or an object with the potential to cause or contribute to an incident or aircraft accident, as defined in 49 CFR 830.2.

Risk means the composite of predicted severity and likelihood of the potential effect of a hazard.

Risk control means a means to reduce or eliminate the effects of hazards.

Safety assurance means processes within the SMS that function systematically to ensure the performance and effectiveness of safety risk controls and that the organization meets or exceeds its safety objectives through the collection, analysis, and assessment of information.

Safety Management System (SMS) means the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk.

Safety objective means a measurable goal or desirable outcome related to safety.

Safety performance means realized or actual safety accomplishment relative to the organization's safety objectives.

Safety policy means the person's documented commitment to safety, which defines its safety objectives and the accountabilities and responsibilities of its employees in regards to safety.

Safety promotion means a combination of training and communication of safety information to support the implementation and operation of an SMS in an organization.

Safety Risk Management means a process within the SMS composed of describing the system, identifying the hazards, and analyzing, assessing, and controlling risk.

§ 5.5 General requirements.

(a) *SMS components*. An SMS under this part must include, at a minimum, all of the following components:

(1) Safety policy that meets the requirements of subpart B of this part.

(2) Safety risk management that meets the requirements of subpart C of this part.

(3) Safety assurance that meets the requirements of subpart D of this part.

(4) Safety promotion that meets the requirements of subpart E of this part.

(b) *System description*. Any person required to have an SMS under this part must:

(1) Develop a system description. The system description must include, at a minimum, the following information about the safety of the aviation products or services provided by the person:

(i) The person's aviation-related processes, procedures, and activities.

(ii) The function and purpose of the aviation products or services provided.

(iii) The operating environment.

(iv) The personnel, equipment, and facilities necessary for operation.

(v) Interfacing persons that contribute to the safety of the aviation-related products and services provided.

(2) Revise the system description to reflect changes to the information in (b)(1) of this section.

(c) *Continuing requirements*. Any person required to develop and implement an SMS under this part must maintain the SMS in accordance with this part.

§ 5.7 Requirements for domestic, flag, and supplemental operations.

(a) Any person authorized to conduct operations under part 121 of this chapter that has an SMS acceptable to the FAA on or before [INSERT EFFECTIVE DATE OF THE RULE], must:

(1) Revise its SMS to meet the requirements of this part in effect on [INSERT EFFECTIVE DATE OF THE RULE].

(2) Submit the revisions for FAA acceptance in a form and manner acceptable to the Administrator no later than [INSERT 12 MONTHS AFTER EFFECTIVE DATE].

(3) Make available to the Administrator, upon request, all necessary information and data that demonstrates that the person has an SMS that meets the requirements set forth in this part.

(4) Maintain the SMS as long as the person is authorized to conduct operations under part 121 of this chapter.

(b) Any person applying for authorization to conduct operations under part 121 of this chapter or with such application pending on or after [INSERT EFFECTIVE DATE OF THE RULE], must:

(1) Develop and implement an SMS that meets the requirements of this part.

(2) Submit a statement of compliance with this part to the FAA in a form and manner acceptable to the Administrator as part of the certification process.

(3) Make available to the Administrator, upon request, all necessary information and data that demonstrates that the person has an SMS that meets the requirements set forth in this part.

(4) Maintain the SMS as long as the person is authorized to conduct operations under part 121 of this chapter.

§ 5.9 Requirements for commuter and on-demand operations or passenger carrying flights for compensation or hire.

(a) Any person authorized to conduct operations under part 135 of this chapter or that holds a Letter of Authorization issued under § 91.147 of this chapter before [INSERT EFFECTIVE DATE], must:

(1) Develop and implement an SMS that meets the requirements of this part no later than [INSERT 24 MONTHS AFTER EFFECTIVE DATE].

(2) Submit to the FAA, a statement of compliance with this part in a form and manner acceptable to the Administrator no later than [INSERT 24 MONTHS AFTER EFFECTIVE DATE].

(b) Any person applying for authorization to conduct operations under part 135 of this chapter or a Letter of Authorization under § 91.147 of this chapter, or with such application pending on or after [INSERT EFFECTIVE DATE OF THE RULE], must:

(1) Develop and implement an SMS that meets the requirements of this part.

(2) Submit a statement of compliance with this part to the FAA in a form and manner acceptable to the Administrator as part of the certification or Letter of Authorization process.

(c) Any person required to develop and implement an SMS under this section must maintain the SMS as long as the person is authorized to conduct operations under either part 135 or § 91.147 of this chapter.

(d) Any person required to develop and implement an SMS under this section must make available to the Administrator, upon request, all necessary information and data that demonstrates that the person has an SMS that meets the requirements set forth in this part.

§ 5.11 Requirements for production certificate holders who are holders or licensees of a type certificate for the same product.

Any person that holds a production certificate issued under part 21 of this chapter for a product for which the person is the holder or licensee of the type certificate on or before [INSERT EFFECTIVE DATE], must:

(a) Develop an SMS that meets the requirements of this part.

(b) Submit to the FAA, an implementation plan in accordance with § 5.17 of this subpart for FAA approval in a form and manner acceptable to the Administrator no later than December 27, 2024.

(c) Implement the SMS in accordance with this part no later than December 27, 2025.

(d) Make available to the Administrator, upon request, all necessary information and data that demonstrates that the person has an SMS that meets the requirements set forth in this part.

(e) Maintain the SMS as long as the person is both a holder of a production certificate and a holder or licensee of a type certificate for the same product.

§ 5.13 Requirements for type certificate holders or licensees applying for a production certificate for the same product.

(a) This section applies to any holder or licensee of a type certificate for a product who either:

(1) Applies for a production certificate for that same product under part 21 of this chapter on or after [INSERT EFFECTIVE DATE OF THE RULE], or

(2) Has an application for a production certificate for that same product under part 21 of this chapter pending on [INSERT EFFECTIVE DATE OF THE RULE].

(b) Any person who meets paragraph (a) of this section must:

(1) Develop an SMS that meets the requirements of this part.

(2) Submit an implementation plan in accordance with § 5.17 of this subpart for FAA approval in a form and manner acceptable to the Administrator, during the certification process.

(3) Implement the SMS in accordance with this part no later than one year from the FAA's approval of the person's implementation plan.

(4) Make available to the Administrator, upon request, all necessary information and data that demonstrates that the person has an SMS that meets the requirements set forth in this part.

(5) Maintain the SMS as long as the person is both a holder of a production certificate and a holder or licensee of a type certificate for the same product.

§ 5.15 Requirements for type certificate holders who allow another person to use the type certificate to obtain a production certificate for the same product.

(a) This section applies to any person that holds a type certificate for a product that allows another person to use the type certificate to manufacture a product under a production certificate.

(b) Any person that meets paragraph (a) and has a licensing agreement in accordance with § 21.55 on [INSERT EFFECTIVE DATE], must:

(1) Develop an SMS that meets the requirements of this part.

(2) Submit an implementation plan in accordance with § 5.17 of this subpart for FAA approval in a form and manner acceptable to the Administrator no later than December 27, 2024.

(3) Implement the SMS in accordance with this part no later than December 27, 2025.

(4) Make available to the Administrator, upon request, all necessary information and data that demonstrates that the person has an SMS that meets the requirements set forth in this part.

(5) Maintain the SMS as long as the person continues to meet paragraph (a).

(c) Any person that meets paragraph (a) and enters into a licensing agreement in accordance with § 21.55 after [INSERT EFFECTIVE DATE], must:

(1) Develop an SMS that meets the requirements of this part.

(2) Submit an implementation plan in accordance with § 5.17 of this subpart for FAA approval in a form and manner acceptable to the Administrator when providing written licensing agreements in accordance with § 21.55.

(3) Implement the SMS in accordance with this part no later than one year from the FAA's approval of the person's implementation plan.

(4) Make available to the Administrator, upon request, all necessary information and data that demonstrates that the person has an SMS that meets the requirements set forth in this part.

(5) Maintain the SMS as long as the person continues to meet paragraph (a).

§ 5.17 Implementation Plan.

(a) An implementation plan filed under this part must include a description of the means of compliance (including but not limited to new or existing policies, processes, or procedures) used to meet the requirements of this part.

(b) A person required to submit an implementation plan under this part must make available to the Administrator, upon request, all necessary information and data that demonstrates that the SMS has been or will be implemented in accordance with the implementation plan.

3. Amend § 5.21 by:

a. Revising the introductory text of paragraph (a), paragraphs (a)(1) and (a)(2).

b. Adding paragraph (a)(7).

c. Revising paragraphs (c) and (d).

The revisions and addition read as follows:

§ 5.21 Safety policy.

(a) Any person required to have an SMS under this part must have a safety policy that includes at least the following:

(1) The person's safety objectives.

(2) The person's commitment to fulfill the safety objectives.

* * * * *

(7) A code of ethics that is applicable to all employees, including management personnel and officers, which clarifies that safety is the organization's highest priority.

* * * * *

(c) The safety policy must be documented and communicated throughout the person's organization.

(d) The safety policy must be regularly reviewed by the accountable executive to ensure it remains relevant and appropriate to the person.

4. Amend § 5.23 by revising the introductory text of paragraph (a), and revising paragraphs (a)(3) and (b) to read as follows:

§ 5.23 Safety accountability and authority.

(a) Any person required to have an SMS under this part must define in its safety policy the accountability for safety of the following individuals:

* * * * *

(3) Employees relative to the person's safety performance.

(b) The person must identify the levels of management with the authority to make decisions regarding safety risk acceptance.

5. Revise § 5.25 to read as follows:

§ 5.25 Designation and responsibilities of required safety management personnel.

(a) *Designation of the accountable executive.* Any person required to have an SMS under this part must identify an accountable executive who, irrespective of other functions, satisfies the following:

(1) Is the final authority over operations authorized to be conducted under the person's certificate(s) or Letter(s) of Authorization.

(2) Controls the financial resources required for the operations to be conducted under the person's certificate(s) or Letter(s) of Authorization.

(3) Controls the human resources required for the operations authorized to be conducted under the person's certificate(s) or Letter(s) of Authorization.

(4) Retains ultimate responsibility for the safety performance of the operations conducted under the person's certificate(s) or Letter(s) of Authorization.

(b) *Responsibilities of the accountable executive*. The accountable executive must accomplish the following:

(1) Ensure that the SMS is properly implemented and is performing across all pertinent areas.

(2) Develop and sign the safety policy.

(3) Communicate the safety policy throughout the person's organization.

(4) Regularly review the safety policy to ensure it remains relevant and appropriate to the person.

(5) Regularly review the safety performance and direct actions necessary to address substandard safety performance in accordance with § 5.75.

(c) *Designation of management personnel*. The accountable executive must designate sufficient management personnel who, on behalf of the accountable executive, are responsible for the following:

(1) Coordinate implementation, maintenance, and integration of the SMS throughout the person's organization.

(2) Facilitate hazard identification and safety risk analysis.

(3) Monitor the effectiveness of safety risk controls.

(4) Ensure safety promotion throughout the person's organization as required in subpart E of this part.

(5) Regularly report to the accountable executive on the performance of the SMS and on any need for improvement.

6. Revise § 5.27 to read as follows:

§ 5.27 Coordination of emergency response planning.

Where emergency response procedures are necessary, any person required to have an SMS under this part must develop, and the accountable executive must approve as part of the safety policy, an emergency response plan that addresses at least the following:

(a) Delegation of emergency authority throughout the person's organization.

(b) Assignment of employee responsibilities during the emergency.

(c) Coordination of the emergency response plans with the emergency response plans of other organizations it must interface with during the provision of its services.

7. Revise the introductory text of § 5.51 to read as follows:

§ 5.51 Applicability.

Any person required to have an SMS under this part must apply safety risk management to the following:

* * * * *

8. Amend § 5.53 by:

a. Revising paragraph (a).

b. Adding paragraph (b)(5).

c. Revising paragraph (c).

The revisions and addition read as follows:

§ 5.53 System analysis and hazard identification.

(a) When applying safety risk management, any person required to have an SMS under this part must analyze the systems identified in § 5.51. Those system analyses must be used to identify hazards under paragraph (c) of this section, and in developing and implementing risk controls related to the system under § 5.55(c).

(b) * * *

(5) The interfaces of the system.

(c) Any person required to have an SMS under this part must develop and maintain processes to identify hazards within the context of the system analysis.

9. Revise § 5.55 to read as follows:

§ 5.55 Safety risk assessment and control.

Any person required to have an SMS under this part must:

(a) Develop and maintain processes to analyze safety risk associated with the hazards identified in § 5.53(c).

(b) Define a process for conducting risk assessment that allows for the determination of acceptable safety risk.

(c) Develop and maintain processes to develop safety risk controls that are necessary as a result of the safety risk assessment process under paragraph (b) of this section.

(d) Evaluate whether the risk will be acceptable with the proposed safety risk control applied before the safety risk control is implemented.

10. Amend § 5.71 by:

a. Revising the introductory text of paragraph (a).

b. Revising paragraphs (a)(6), (a)(7), and (b).

c. Adding paragraph (c).

The revisions and addition read as follows:

§ 5.71 Safety performance monitoring and measurement.

(a) Any person required to have an SMS under this part must develop and maintain processes and systems to acquire data with respect to its products and services to monitor the safety performance of the organization. These processes and systems must include, at a minimum, the following:

* * * * *

(6) Investigations of reports regarding potential non-compliance with regulatory standards or other safety risk controls established by the person through the safety risk management process established in subpart C of this part.

(7) A confidential employee reporting system in which employees can report hazards, issues, concerns, occurrences, incidents, as well as propose solutions and safety improvements, without concern of reprisal for reporting.

(b) Any person required to have an SMS under this part must develop and maintain processes that analyze the data acquired through the processes and systems identified under paragraph (a) of this section and any other relevant data with respect to its products and services.

(c) Any person that holds both a type certificate and a production certificate issued under part 21 of this chapter for the same product must submit a summary of the confidential employee reports received under subparagraph (a)(7) of this section to the Administrator once every 6 months.

11. Amend § 5.73 by revising the introductory text of paragraph (a), and revising paragraphs (a)(1) and (b) to read as follows:

§ 5.73 Safety performance assessment.

(a) Any person required to have an SMS under this part must conduct assessments of its safety performance against its safety objectives, which include reviews by the accountable executive, to:

(1) Ensure compliance with the safety risk controls established by the person.

* * * * *

(b) Upon completion of the assessment, if ineffective controls or new hazards are identified under paragraphs (a)(2) through (5) of this section, the person must use the safety risk management process described in subpart C of this part.

12. Revise § 5.75 to read as follows:

§ 5.75 Continuous improvement.

Any person required to have an SMS under this part must establish and implement processes to correct safety performance deficiencies identified in the assessments conducted under § 5.73.

13. Revise § 5.91 to read as follows:

§ 5.91 Competencies and training.

Any person required to have an SMS under this part must provide training to each individual identified in § 5.23 to ensure the individuals attain and maintain the competencies necessary to perform their duties relevant to the operation and performance of the SMS.

14. Amend § 5.93 by revising the introductory text to read as follows:

§ 5.93 Safety communication.

Any person required to have an SMS under this part must develop and maintain a means for communicating safety information that, at a minimum:

* * * * *

15. Add § 5.94 to read as follows:

§ 5.94 Notification of hazards to interfacing persons.

(a) If a person required to have an SMS under this part identifies a hazard in the operating environment, the person must provide notice of the hazard to the interfacing person or persons identified in the system description maintained under § 5.5(b) who, to the best of their knowledge, could address the hazard or mitigate the risk.

(b) Any person required to have an SMS under this part must develop and maintain procedures for reporting and receiving hazard information in accordance with subsection (a).

16. Amend § 5.95 by revising the introductory text and adding paragraph (c) to read as follows:

§ 5.95 SMS documentation.

Any person required to have an SMS under this part must develop and maintain the following SMS documentation:

* * * * *

(c) System description.

17. Revise § 5.97 to read as follows:

§ 5.97 SMS records.

Any person required to have an SMS under this part must:

(a) Maintain records of outputs of safety risk management processes as described in subpart C of this part. Such records must be retained for as long as the control remains relevant to the operation.

(b) Maintain records of outputs of safety assurance processes as described in subpart D of this part. Such records must be retained for a minimum of 5 years.

(c) Maintain a record of all training provided under § 5.91 for each individual. Such records must be retained for as long as the individual is employed by the person.

(d) Retain records of all communications provided under § 5.93 or § 5.94 for a minimum of 24 consecutive calendar months.

PART 21– CERTIFICATION PROCEDURES FOR PRODUCTS AND ARTICLES

18. The authority citation for part 21 is revised to read as follows:

Authority: 42 U.S.C. 7572; 49 U.S.C. 106(f), 106(g), 40105, 40113, 44701-44702, 44704, 44707, 44709, 44711, 44713, 44715, 45303; Pub. L. 116-260; 134 Stat. 2309.

19. Amend § 21.55 to read as follows:

§ 21.55 Responsibility of type certificate holders that provide written licensing agreements.

A type certificate holder who allows a person to use the type certificate to manufacture a new aircraft, aircraft engine, or propeller must meet the applicable requirements of part 5 of this chapter and provide that person with a written licensing agreement acceptable to the FAA.

20. Amend § 21.135 by adding paragraph (c) to read as follows:

§ 21.135 Organization.

* * *

(c) Each applicant for or holder of a production certificate, except those based only on a supplemental type certificate or on the rights to the benefits of a supplemental type certificate under a licensing agreement, must meet the applicable requirements of part 5 of this chapter.

21. Amend § 21.147 by revising paragraph (b) to read as follows:

§ 21.147 Amendment of production certificates.

* * *

(b) An applicant for an amendment to a production certificate to add a type certificate or model, or both, must comply with §§ 21.135 (c), 21.137, 21.138, and 21.150.

* * *

PART 91— GENERAL OPERATING AND FLIGHT RULES

22. The authority citation for part 91 continues to read as follows:

Authority: 49 U.S.C. 106(f), 106(g), 40101, 40103, 40105, 40113, 40120, 44101, 44111, 44701, 44704, 44709, 44711, 44712, 44715, 44716, 44717, 44722, 46306, 46315, 46316, 46504, 46506-46507, 47122, 47508, 47528-47531, 47534, Pub. L. 114-190, 130 Stat. 615 (49 U.S.C. 44703 note); articles 12 and 29 of the Convention on International Civil Aviation (61 Stat. 1180), (126 Stat. 11).

23. Revise § 91.147 to read as follows:

§ 91.147 Passenger carrying flights for compensation or hire.

(a) *Definitions.* For the purposes of this section *Operator* means any person conducting nonstop passenger-carrying flights in an airplane or helicopter for compensation or hire in accordance with §§ 119.1(e)(2), 135.1(a)(5), or 121.1(d), of this chapter that begin and end at the same airport and are conducted within a 25-statute mile radius of that airport.

(b) *General requirements.* An Operator conducting passenger-carrying flights for compensation or hire must meet the following requirements unless all flights are conducted under § 91.146. The Operator must:

(1) Comply with the safety provisions of part 136, subpart A of this chapter.

(2) Register and implement its drug and alcohol testing programs in accordance with part 120 of this chapter.

(3) Comply with the applicable requirements of part 5 of this chapter.

(4) Apply for and receive a Letter of Authorization from the responsible Flight Standards office.

(c) *Letter of Authorization*. Each application for a Letter of Authorization must include the following information:

(1) Name of Operator, agent, and any d/b/a (doing-business-as) under which that Operator does business.

(2) Principal business address and mailing address.

(3) Principal place of business (if different from business address).

(4) Name of person responsible for management of the business.

(5) Name of person responsible for aircraft maintenance.

(6) Type of aircraft, registration number(s), and make/model/series.

(7) Antidrug and Alcohol Misuse Prevention Program registration.

(8) The statement of compliance required under part 5 of this chapter.

(d) *Compliance*. The Operator must comply with the provisions of the Letter of Authorization received.

PART 119—CERTIFICATION: AIR CARRIERS AND COMMERCIAL OPERATORS

24. The authority citation for part 119 continues to read as follows:

Authority: Pub. L. 111-216, sec. 215 (August 1, 2010); 49 U.S.C. 106(f), 106(g), 1153, 40101, 40102, 40103, 40113, 44105, 44106, 44111, 44701-44717, 44722, 44901, 44903, 44904, 44906, 44912, 44914, 44936, 44938, 46103, 46105.

25. Revise § 119.8 to read as follows:

§ 119.8 Safety Management Systems.

No certificate holder authorized to conduct operations under part 121 or 135 of this chapter may operate an aircraft under that certificate unless the certificate holder complies with the applicable requirements of part 5 of this chapter.

Issued under authority provided by 49 U.S.C. 106(f), 44701(a), and 44703 in Washington, DC, on

Warren S Randolph,

Deputy Executive Director, Office of Accident Investigation and Prevention.

Federal Aviation Administration