



Safety Management Systems for Part 121 Certificate Holders

Comments on the Notice of Proposed Rulemaking
published at 75 Fed. Reg. 68224 (November 5, 2010).

Submitted to the FAA docket number FAA-2009-0671
online at <http://www.regulations.gov>

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Docket Operations, M-30
U.S Department of Transportation
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West Building Ground Floor, Room W12-140
Washington, DC 20590-0001

Dear Sir or Madam:

Please accept these comments in response to the Safety Management Systems for Part 121 Certificate Holders Notice of Proposed Rulemaking, which was published for public comment at 75 Fed. Reg. 68224 (November 5, 2010).

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Who is ASA?

Founded in 1993, ASA represents the aviation parts distribution industry, and has become known as an organization that fights for safety in the aviation marketplace.

ASA and ASA's members are committed to safety, and seek to give input to the United States Government regarding government policies so that the aviation industry and the government can work collaboratively to create the best possible guidance for the industry and the flying public.

ASA members have a special interest in safety management. ASA helped the FAA to develop the Voluntary Industry Distributor Accreditation Program (AC 00-56) and has implemented an AC 00-56 compliant quality system known as ASA-100 in order to facilitate the development of robust quality management systems in aircraft parts distributor operations. ASA has also been providing resources and training to its members in order to support their implementation of safety risk analysis and safety risk management programs. Because ASA audits facilities to quality standards, ASA has also used safety risk management in its own operations to identify hazards, risks, and mitigations in its own oversight operations as a third party auditor.

ASA members also have special relationships with their air carrier business partners. Air carriers rely on ASA's members to provide them with data that support their regulatory compliance objectives. For example, ASA has promoted the use and retention of traceability documentation in order to help provide air carriers with objective evidence to support their 14 C.F.R. § 43.13 obligations. Similarly, it is likely that air carriers will expect aircraft parts distributors to facilitate the collection of certain types of

data that would be used to help support the data collection analysis obligations found in section 5.71 of the NPRM.

Introduction to the Comments

General

ASA applauds the FAA's efforts to provide tools that support aviation safety efforts; nonetheless, ASA advises caution with respect to the proposal because there are many serious issues associated with the NPRM that need to be corrected before it is published as a final rule. We believe that these issues must be addressed and corrected in order to produce a rule that will appropriately support the shared safety goals of the FAA and of the industry.

The SMS program, as described in this NPRM, could negatively affect safety by requiring limited safety resources to be expended on redundant and non-value-added analysis when those same resources might be better spent on developing and implementing risk controls in lieu of analysis.

In this set of comments, you will find both high-level comments - identifying potential issues and offering proposed solutions to those issues, and detail-level comments - identifying details that need to be corrected in the text of the proposed rule.

Specific recommended language can be found in red print in these comments.

No Comments on Advisory Material

ASA has not offered comments on the advisory material. There are so many changes that need to be made to the proposed rule, that there will need to be significant changes made to the advisory guidance in order to make the guidance conform to the final rule. As a consequence, we recommend that the FAA update the guidance to conform to the final rule and then make the updated guidance available to the industry for comment.

SMS Comments

The FAA has acknowledged that Part 5 is intended to have future applicability to other regulated sectors, including Part 21 aircraft design and manufacturing organizations and approval holders. Safety Management Systems for Part 121 Certificate Holders, 75

Fed. Reg. 68224, 68232 (Nov. 5, 2010). For this reason, our comments reflect the needs of the rule as written, and also reflect the needs of the rule as it appears intended to be used in the future.

Cost Benefit Analysis

Likely Costs of SMS on an Ongoing Basis

Based on the regulatory requirements, we have developed a table of the typical personnel requirements that would be required in order to meet the FAA's regulatory requirements as found in the NPRM. The table shows that a typical implementation would result in 1.1 million dollars in annual staff costs, alone. This cost is not adequately represented in the Cost-Benefit Analysis provided by the FAA.

Typical SMS Personnel Requirements for a Company:

Regulatory Basis	Position	Annual Hours Spent on SMS	Hourly Remuneration (without benefits) ¹	Total Remuneration (without benefits)
5.21(e), 5.25, 5.27, 5.73, 5.93	Accountable Executive	416	72.7	30,243.20
5.53, 5.71, 5.73, 5.75, 5.93, 5.97	SMS Administrator (manages the SMS program)	2080	53.29	110,843.20
5.71	12 Data Collection Clerks (collecting and entering safety data)	24960	16.34	407,846.40
5.71	Information technology / database clerk (manage software associated with data collection and analysis)	2080	39.5	82,160
5.51, 5.53, 5.55, 5.97	Reactive Data Analyst (analyzes collected data for trends and safety issues to identify hazards based on occurrences)	2080	38.59	80,267.20
5.51, 5.53, 5.55, 5.97	Predictive Data Analyst (analyzes data, hazards and risk assessments to predict future hazards and safety issues)	2080	38.59	80,267.20
5.55, 5.73, 5.75, 5.97	SMS Assurance Manager (Identifies and develops mitigations)	2080	52.47	109,137.60
5.55, 5.97	Implementation Manager (manages system changes in response to Risk Control decisions - implements mitigations identified by the SMS Assurance manager)	2080	44.39	92,331.20

¹ Source: May 2009 National Industry-Specific Occupational Employment and Wage Estimates, NAICS 481100 - Scheduled Air Transportation (mean hourly wages) [http://www.bls.gov/oes/current/naics4_481100.htm].

5.21, 5.25, 5.53, 5.55, 5.71	Technical Writer (draft procedure changes where identified as a necessary element of Risk Control)	2080	24.30	50,544.00
5.71, 5.73, 5.75, 5.97	SMS Auditor	2080	29.22	60,777.60
5.91	SMS Trainer (trains all personnel on SMS procedures)	416	34.33	14,281.28
	TOTAL			1,118,698.88

Note that the large number of data collection clerks is based on the need to collect a wide variety of data to support the SMS. The unbounded nature of the data collection obligation will require a significant data collection staff to identify and gather the data, before the data analysis staff can analyze the data.

SMS A SMS implementation needs to address much more than what is addressed in the existing cost-benefit analysis found in the NPRM. The NPRM cost-benefit analysis simply does not provide for the necessary personnel that would be required to meet all of the regulatory requirements associated with the proposed SMS system.

Duties of the Accountable Executive Must Be Taken Into Account

The accountable executive, by definition, must be the final authority over operations. NPRM § 5.25(a)(1). This means that the individual must be the Chief Operating Officer or Chief Executive Officer in order to meet the regulatory requirement. Such an individual cannot devote full-time attention to day-to-day management of the SMS, because such an individual (the final authority) must also provide other oversight and leadership to the business as a whole.

SMS will demand a significant block of time from the accountable executive. The accountable executive is required to:

- Ensure that the SMS is properly implemented and performing in all areas of the certificate holder's organization (NPRM 5.25(b)(1))
- Develop and sign the safety policy of the certificate holder (NPRM 5.25(b)(2))
- Communicate the safety policy throughout the certificate holder's organization (NPRM 5.25(b)(3))
- Regularly review the certificate holder's safety policy to ensure it remains relevant and appropriate to the certificate holder (NPRM 5.21(e), 5.25(b)(4))
- Regularly review the safety performance of the certificate holder's organization and direct actions necessary to address substandard safety performance in accordance with § 5.75 (NPRM 5.25(b)(5))
- Designate the management representative (NPRM 5.25(c))
- Develop an emergency response plan (NPRM 5.27)
- Review safety performance by comparison against safety objectives (NPRM 5.73(a))

The preamble to the rule implies that these accountable executive duties are non-delegable. For example, the preamble insists that the rule will "ensure[] that management is actively engaged in the oversight of the company's safety performance by requiring regular review of the safety policy by a designated accountable executive." Safety Management Systems for Part 121 Certificate Holders, 75 Fed. Reg. 68224, 68226 (Nov. 5, 2010).

The preamble also makes it clear that the accountable executive is intended to be a single individual. Safety Management Systems for Part 121 Certificate Holders, 75 Fed. Reg. 68224, 68234 (Nov. 5, 2010). SO thee duties may not be shared among a management team.

As a consequence a significant amount of the chief executive's time will now be devoted to the management of the SMS program.

The cost section of the Regulatory Flexibility Analysis fails to account for the costs associated with the requirement that the CEOs and COOs of air carriers must actively participate in the compliance with this new rule. It should account for the salaries of the CEOs and COOs. It also should account for the opportunity costs to the air carriers by virtue of the fact that the CEOs and COOs of air carriers will be unable to perform their jobs to the same level of competence as they do today, because a significant amount of their time will have to be devoted to direct oversight of the new SMS programs.

The Regulatory Flexibility Analysis Fails to Consider the Costs of Risk Controls

The benefits analysis is based on the benefits to be realized from the implementation of risk controls. But the cost section does not examine the costs of those same risk controls. This is a serious flaw that fails to compare apples-to-apples, because the benefits section assigns value to the benefits of risk controls that will be required by the rule but the offsetting costs section fails to assess the costs of any risk controls that will be required by this rule.

The FAA has probably omitted the costs of the expected risk controls because the actual risk controls are difficult or impossible to identify. But the FAA has assumed benefits from these same unidentified risk controls. Therefore, since financial benefits have been estimated from the risk controls, the FAA must, in fairness, estimate costs associated with the same risk controls.

If the FAA is unable to estimate the costs associated with future risk controls, then the FAA should drop the future risk controls (and their associated benefits) from the cost-benefit equations, as well.

The Regulatory Flexibility Analysis Unfairly Assumes Benefits of Risk Controls

The NPRM states that "[t]he benefits of this proposed rule consist of the value of averted casualties, aircraft damage, and accident investigation costs by identifying safety issues and spotting trends before they result in a near-miss, incident, or accident."

SMS will not, intrinsically, avert any casualties or costs. SMS reflects a system for identifying hazards, and developing and implementing risk controls. It is the risk controls, though, that will avert casualties and/or costs.

As discussed in the section above, the FAA has probably omitted the costs of the expected risk controls in its Regulatory Flexibility Analysis because the actual risk controls are difficult or impossible to identify. But if the likely risk controls cannot be identified, then the FAA should not assume that the as-yet-unidentified risk controls will be successful in achieving any benefits.

The benefits analysis is not based on the direct benefits of SMS. Instead, the benefits analysis is based on the indirect benefits of SMS that could be realized if risk controls are identified that successfully prevent accidents.

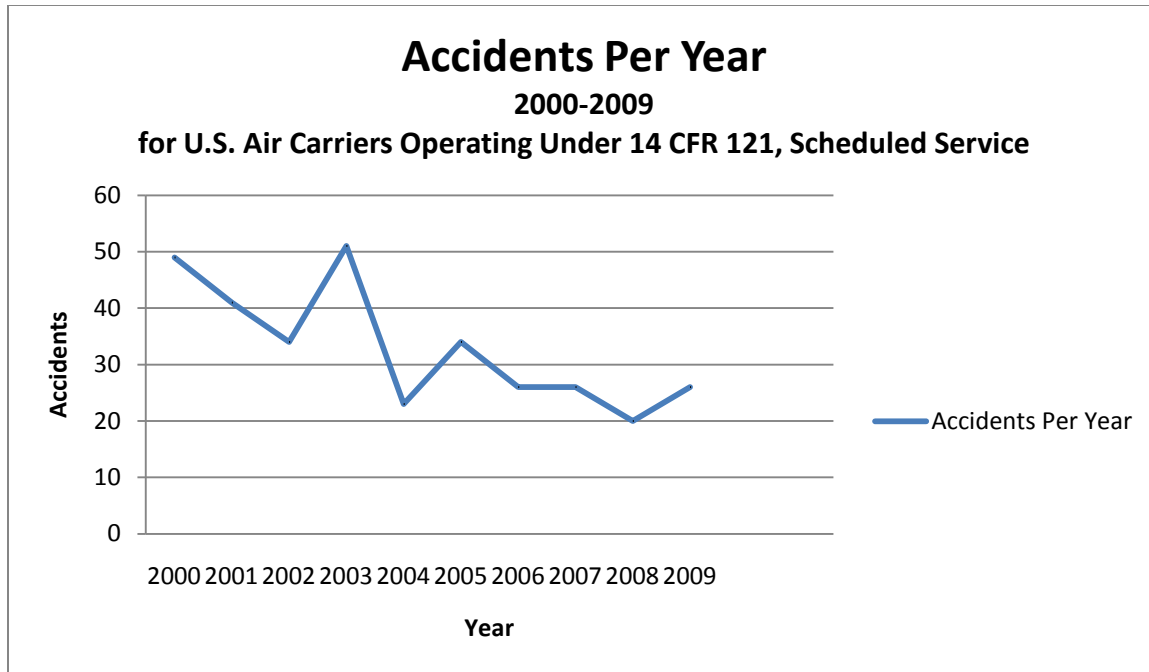
The cost-benefit analysis assumes that all identified accidents would be prevented by SMS; but this conclusion does not seem rational. Many of the accidents cited in the Initial Regulatory Flexibility Analysis seem to be accidents that either could not be reasonably predicted, even with SMS, or if they were predicted then the risk controls to prevent them would have been quite expensive.

In the absence of identification of any particular risk controls, the assumption that there will be actual calculable benefits to SMS is speculative at best, and potentially fraudulent at worst. Therefore, we recommend that the FAA drop the speculative benefits associated with averted accidents from its cost-benefit analysis.

SMS Benefits Analysis is Based on an Inconsistent Analysis Of Trend Data

To estimate SMS benefits from future averted accidents the FAA Office of Accident Investigation and Prevention reviewed NTSB accident investigations from October 2000 through June 2010. In its benefits analysis, the FAA identified 172 accidents during this time period, and predicted that SMS would prevent the same 172 accidents during the upcoming decade.

A review of the NTSB's accident database between 2000 and 2009 shows that the general trend in accidents (without SMS) is a downward trend in total accidents over the past ten years (despite an upward trend in total flight miles flown). This is illustrated in the chart, below, entitled "Accidents Per Year: 2000-2009." Thus, assuming that the next ten years will generate a number of accidents comparable to the numbers observed over the past ten years would be contrary to the trends observed in the current data set.



The downward trend of both accidents and accidents per 100,000 flight hours suggests that the next ten years will produce fewer accidents than the past ten years have produced. This means that the next ten years are likely to result in a lower number of accidents (lower than the past ten years) even without SMS. As a consequence, the FAA's assumptions concerning a steady trend in accidents seems contrary to the data.

The Hypothesis that SMS will Prevent all Future Accidents is Unfounded

The benefits analysis for the proposed assumes that we will see the same accident statistics over the next ten years that we have seen over the next ten years. It then predicts, for the purposes of benefits analysis, that all 172 of these accidents would be prevented by SMS.

The hypothesis that SMS will prevent all future accidents identified by the FAA seems inconsistent with the realities of SMS. SMS can only predict a future hazard, and implement risk controls, where (1) there is past data from which to extrapolate a future possibility of hazard/risk, and (2) there is an achievable risk control that would reduce the possibility of that hazard to zero. SMS does not alter the laws of physics, nor does it remove the inherent unpredictability of a system that is based on non-linear equations (and models of nature are based on non-linear equations).

In many cases, there is no data from which an air carrier could predict a hazard and implement effective risk controls. SMS would not prevent those hazards for which there is no predictive data.

Many of the accidents that the FAA identified as being prevented in the future by SMS are accidents caused by natural phenomena, like turbulence. While better models in

the future may permit air carriers to better avoid turbulence, turbulence can be unexpected, and unpredictable. Current mathematical and scientific models are unable to identify all instances of turbulence, and they are not able to identify all weather-related features. In many accidents caused by causes like turbulence or weather, SMS would not have prevented these accidents, because it could not have prevented the turbulence or weather.

The FAA's benefits analysis is based on 426 fatalities over the past ten years. Over half of those fatalities occurred on November 12, 2001, as a consequence of the crash of American Airlines flight 587, an Airbus A300-605R, identified by register number N14053. That aircraft experienced forces consistent with wake turbulence and the probable cause of the accident was a break in the vertical stabilizer as a result of unnecessary and excessive rudder pedal inputs. The NTSB felt that the rudder system design and elements of the American Airlines Advanced Aircraft Maneuvering Program were contributing factors.

There does not appear to have been any prior data that would have suggested that this rudder failure was a reasonable possibility. Thus, for a SMS to have identified this as a hazard in need of mitigation would have required a level of prediction bordering on the supernatural.

It seems fanciful to believe that a prior scrutiny by American Airlines would have revealed a reasonable possibility of a hazard. In light of the fact that it is unlikely that a SMS program would have identified this as a hazard that needed to be addressed, before the accident, it is equally unlikely that the existence of a SMS program would have prevented this accident.

While it is theoretically possible that a SMS program might have identified and mitigated the hazard prior to the accident - the level of scrutiny necessary to have identified and mitigated the hazard would reflect a SMS that is unreasonably detailed in its data collection and analysis, and that requires an unreasonable level of resources in order to operate successfully.

Thus, either the FAA should curtail its benefits estimates, or the FAA should significantly increase the estimates of costs of running a SMS program, to reflect the extremely high level of data creation and scrutiny that will be required to run a SMS capably of *a priori* identifying and mitigating the sort of hazard reflected by this accident.

The Data Upon which the FAA Relies Does Not Support the Proposition that SMS Could Have Prevented 172 Past Accidents

We performed a summary review of the accidents referenced in Table 2 of the Initial Regulatory Evaluation for this proposed rule. Many of these accidents have characteristics that lend themselves to either being 1) not pertinent to ensuring the safety of the flying public and/or 2) nearly unavoidable given a pragmatic approach to SMS using today's methodology.

An example of the accidents that are not pertinent to ensuring the safety of the flying public is the December 2, 2003 accident in which a parked Canadair CL-600 operated by Comair was damaged when it was struck by a belt loader (NTSB report NYC04LA042). Gusty wind conditions had knocked the driver out of the vehicle and it ran into the parked aircraft. This was categorized as an accident that caused substantial damage to an aircraft; however no passenger nor crew injuries occurred, and there appears to be little that Comair could have done to have prevented the accident, because the belt loader was not under Comair's control. This event is unlikely to have been prevented by a SMS, and it appears to fall outside the scope of FAA's statutory mission.

An example of an accident that appears to be unavoidable even under a SMS can be found in the May 28, 2001 accident involving a US Airways Boeing 737-300 (identified by registry number N349US (NTSB report MIA01LA146). In that case flight 351 encountered turbulence seventeen minutes into the flight while climbing. The airplane was not damaged, but one flight attendant was injured. The flight diverted to Atlanta and landed without further incident.

The NTSB Meteorology Factual Report revealed there were no severe weather forecast Alerts, Segments, Center Weather Advisories, or Airmets for turbulence over Georgia at the time of the accident, so there was no data upon which a prediction of turbulence could have been based. Because of a lack of predicate data, no SMS could have predicted turbulence in this case.

In accident report after accident report, we have seen accidents that are unlikely to have been predicted or mitigated by a SMS using currently available methodologies and tools. For this reason, it appears that the FAA's predicted benefit analysis cannot be supported.

As Proposed, SMS Could Diminish Safety

SMS could reflect a potential misallocation of resources. This is because certificate holders may expend resources trying to comply with the SMS program instead of trying to comply with the regulations.

Certificate holders do not have infinite safety resources. Under the present regulations, certificate holders comply with performance-based (rather than process based) safety standards. Performance-based safety standards permit certificate holders to use optimal methods to achieve safety goals, and to change methods when newer methods provide more effective ways to achieve safety goals. This permits certificate holders to optimize the way that they use their limited safety resources in order to still achieve high levels of safety.

The program described in the NPRM could lead to endless analysis of hazards which might rob resources from regulatory compliance efforts as well as safety improvement

efforts. That is, certificate holders could find themselves experiencing "paralysis by analysis" in which their limited resources are tied-up performing potentially redundant safety risk analyses, or safety risk analyses that are not value added because the results of the safety risk analyses can easily be predicted without going through the laborious process of performing the safety risk analyses (the regulations would nonetheless require them to be completed in accordance with the written SMS program).

Because the proposed SMS program could reduce safety by redirecting limited resources to redundant and otherwise unnecessary analysis, to the exclusion of actual mitigation of hazards, we recommend that the analysis requirements of SMS be curtailed, as described elsewhere in these comments.

Paperwork Reduction Analysis

Here is a table listing all of the information collection requirements, and some estimates of reasonable amounts of time that these information collections might take in an air carrier environment.

Regulation	Information Collection Activity	Estimated Initial Annual Burden (in hours) (1st Year)	Estimated Annual Burden (in hours) (After the 1st Year)
5.3(a)(1)	Draft and submit to the FAA the safety policy procedures described by subpart B (to comply with the requirements of sections 5.21, 5.23, 5.25, and 5.27)	520	0
5.3(a)(2)	Draft and submit to the FAA the safety risk management procedures described by subpart C (to comply with the requirements of sections 5.53, and 5.55)	520	0
5.3(a)(3)	Draft and submit to the FAA the safety assurance procedures described by subpart D (to comply with the requirements of sections 5.71 and 5.75)	520	0
5.3(a)(4)	Draft and submit to the FAA the safety promotion procedures described by subpart E (to comply with the requirements of section 5.93)	520	0
5.21(d), 5.25(b)(3)	Document and communicate the safety policy elements throughout the certificate holder organization	520	520
5.21(e) , 5.25(b)(5)	Accountable executive shall review and revise the safety policy elements described in Subpart B of the rule to keep it relevant and appropriate	160	160
5.53(c)	Maintain (update) the written processes for identification of hazards	520	520
5.53(a)	Maintain (update) the written processes for analyzing safety risk of hazards	520	520
5.53(c)	Maintain (update) the written processes	520	520

Regulation	Information Collection Activity	Estimated Initial Annual Burden (in hours) (1st Year)	Estimated Annual Burden (in hours) (After the 1st Year)
	for developing safety risk controls		
5.53, 5.97(a)	Document the outputs (hazards and safety risk controls) from the safety risk management processes	2080	2080
5.53(c)(1), 5.97(a)	Evaluate acceptability of risks that are identified	2080	2080
5.71(a)	Maintain (update) the written processes for developing acquiring safety data	520	520
5.71(a)	Acquire safety data	4160	4160
5.71(a)(1), 5.97(b)	Document (acquire data with respect to) the continuous monitoring of operational processes	4160	4160
5.71(a)(2), 5.97(b)	Document (acquire data with respect to) periodic monitoring of the operational environment to detect changes	2080	2080
5.71(a)(3), 5.97(b)	Document (acquire data with respect to) auditing of operational processes and systems (internal audit records)	2080	2080
5.71(a)(4), 5.97(b)	Document (acquire data with respect to) evaluations of SMS and operational processes	2080	2080
5.71(a)(5), 5.97(b)	Document (acquire data with respect to) incidents and accidents	2080	2080
5.71(a)(6), 5.97(b)	Document (acquire data with respect to) reports regarding non-compliance	2080	2080
5.71(a)(7), 5.97(b)	Establish, maintain, and document (acquire data with respect to) the confidential employee reporting system	2080	2080
5.71(b)	Maintain (update) the written processes for analyzing the data acquired	2080	2080
5.73, 5.97(b)	Document the safety performance assessment	2080	2080
5.75, 5.97(b)	Document the processes for correcting substandard safety performance	10400	10400
5.93(a)	Maintain (update) the written processes for communicating safety data	520	520
5.93, 5.97(d)	Draft and communicate safety data and retain records of the communications	4160	4160
5.95	Maintain (update) the written processes for describing the safety policy and the SMS processes and procedures	520	520
5.97(c)	Training records	1040	1040
119.8(b)	Draft and submit an SMS implementation plan	40	0
	TOTAL	50640 hours	48520 hours

Eliminate Redundancies in the Proposed Rule

The proposed rule includes significant redundancy. This section lists a few examples, but there are many other redundancies that should be identified and eliminated, and this should not be viewed as an exhaustive list.

Examples:

- The accountable executive is required to sign the safety policy by both NPRM 5.21(c) and NPRM 5.25(b)(2).
- The safety policy must be communicated throughout the organization according to NPRM 5.21(d), NPRM 5.25(b)(3), and NPRM 5.93(a) (requiring the entire SMS to be communicated).
- The certificate holder is required to develop documents describing its SMS processes and procedures under separate sections NPRM 5.21-5.27 (safety policy), NPRM 5.53 (safety risk management for identifying hazards), NPRM 5.55 (safety risk management analysis of risk), NPRM 5.71 (safety assurance), and NPRM 5.93 (safety communication). There is redundant text in NPRM 5.3 requiring these same elements and then again generally under NPRM 5.95(b).
- Two sections require the certificate holder to perform safety risk management on hazards identified through safety assurance (NPRM 5.51(d) and NPRM 5.71(b))

We recommend that the FAA review the entire rule to identify the redundant requirements, and eliminate them from the rule.

Flow-Down of Requirements

The FAA has suggested in the preamble to the rule that it will not require the SMS to be flowed-down to suppliers.

It is normal in the industry for air carriers and other certificate holders to flow-down their requirements to their suppliers, even without a regulatory requirement.

For example, many certificate holders companies may decide to use their suppliers as data sources for their SMS (e.g. reports of identified hazards). There is nothing in the regulation that prevents the FAA from saying that once the flow-down is in the manual, the supplier becomes part of the SMS system and thus becomes subject to SMS oversight.

This broader application of SMS appears to be contrary to FAA intent, based on stated positions espoused by FAA representatives during the FAA SMS ARC meetings. Thus, in order to avoid violating FAA intent, we recommend that the rule specify that a

company may rely on its business partners as data sources for its SMS, but even if it does so, this act alone would not impose SMS regulations (nor FAA SMS oversight) on the business partner.

Standards of Compliance

Process-Based vs. Performance-Based

In promulgating regulations, agencies are required to “identify and assess alternative forms of regulation and shall, to the extent feasible, specify performance objectives, rather than specifying the behavior or manner of compliance that regulated entities must adopt.” Regulatory Planning and Review, Executive Order 12866 § 1(b)(8)(September 30, 1993).

The existing airworthiness standards and certification regulations establish objective standards for safety. The purpose of the proposed SMS is to specify a management system for accomplishing compliance to the existing regulations. The FAA has admitted that the purpose of SMS is to provide a method for ensuring compliance to the existing aviation safety standards. E.g. 75 Fed. Reg. 68224, 68237 (November 7, 2010); Proposed 14 C.F.R. §§ 5.3(c); 5.73(a)(1). It is also a method for assessing and controlling risk. Id. at 68233. “[A]n SMS would, at its foundation, ensure compliance with safety-related statutory and regulatory requirements and allow certificate holders to address hazards unique to their operations.” Id. at 68226. Thus, the FAA is specifying the behavior that regulated entities must adopt to ensure compliance to existing performance-based standards. This means that SMS is a process-based rule that would require a specific process in order to meet existing performance-based standards.

One of the problems with a process-based rule is that it fails to provide clear guidance for what will be considered to reflect adequate attainment of the required process.

Another one of the problems with this particular process-based rule is that it will preclude alternative methods of ensuring compliance as new methodologies are developed.

We recommend that the rule be redrafted to establish performance-based standards.

We also recommend that the preamble to the final rule desist from calling this SMS rule a performance-based rule, unless it is redrafted, because it is not a performance-based rule (it is a process-based rule that provides no performance standards).

It is Important for SMS to Foster a Variety of Systems that all Support a Common Safety Goal

A SMS is a management system. It is meant to accomplish specific goals but it may be generalized as fitting within the category of management systems.

Management systems can help a company meet important goals – like safety goals, regulatory compliance goals, and quality goals. But they are only tools for meeting those goals. A safety management system should not be the FAA's ultimate goal; rather the FAA's goal should be to increase safety. A tool that helps a company increase safety is a means to an end – not an end in itself.

Tools come in many sizes. A safety management system that perfectly meets the safety needs of a very large company may be an inappropriate fit for a medium sized company – and that same system might suffocate or bankrupt a small company. For this reason, the regulations implementing safety management systems should focus on the goals to be achieved, rather than the manner in which those goals are achieved.

Like all tools, a management system can become outdated. A company can outgrow the system, or modern technology and paradigms may outgrow the tool. The system itself can even become an impediment to meeting the original established goals, especially when there are better tools for meeting those goals. This is another reason that the regulations implementing safety management systems should focus on the goals to be achieved, rather than the manner in which those goals are achieved. The regulations must establish guidelines that permit a wide variety of solutions.

The FAA's regulatory lead times are very long.² We cannot rely on future rulemaking efforts to correct limitations imposed by the initial SMS rule, especially when some companies might have vested competitive reasons to oppose updates in the rules.

There has been a tendency in recent years for FAA resources to be wasted on disputes over manual formatting, and other non-essential elements of quality systems that have no impact on safety or quality. It is natural for such elements to attract the attention of government employees – it is easy to focus on a formatting issue, but harder to focus on technical issues that genuinely affect safety. This sort of waste of government resources should be rejected in any SMS rule.

For these reasons, it is important for the FAA to establish safety management standards that foster a wide variety of potential management systems and tools. As drafted, because it is a process-based standard rather than a performance-based or goal-based standard, the SMS NPRM runs the risk of inhibiting future systems that might permit more effective approaches to safety management. We recommend that the FAA needs to significantly revise this rule to make it performance-based (goal-based). One option might be to rescind almost the entire rule and reissue the rule text as an advisory circular providing the basic ideas about safety management. The rule that could then

² For example, the FAA has just published a manufacturing rule on October 16, 2009, that was begun as an ARAC project over 16 years ago. The ARAC project forwarded a complete rule draft to the FAA in February 1999 (this included a full preamble for the NPRM). It took over ten years to get the completed rule from ARAC proposal to final rule.

be issued as a simple requirement for the company to have a system to predict hazards and to avoid them (and SMS could be one way but not the only way to achieve this goal).

Setting Reasonable Compliance Standards

There is no standard for when the system has met the requirements, because the SMS is by definition a continuous cycle of hazard identification and risk assessment and mitigation. We feel that the rule should set reasonable compliance standards.

The Rule May Create New, Unanticipated, Regulatory Standards

The SMS NPRM anticipates that companies would identify hazards (e.g. NPRM 5.53(c)), develop risk controls to address those hazards (e.g. NPRM 5.55), and then implement effective risk controls (implied by NPRM 5.73(a)(3), which requires evaluation of the effectiveness of the safety risk controls, and NPRM 5.73(b), which requires remedies for ineffective risk controls).

It appears that companies will create and implement risk controls in order to meet the requirements of the regulations. Risk controls would appear to reflect new *de facto* regulatory standards, because a failure to comply with an implemented risk control would appear to reflect several potential violations, including but not limited to:

- a violation of NPRM 5.51 (for failure to properly apply safety risk management)
- a violation of NPRM 5.55(c) (for failure to properly develop and maintain safety risk processes)
- a violation of NPRM 5.55(c)(1) (if the risk control did not make a risk acceptable)
- a violation of NPRM 5.75 (for failure to properly implement processes for correction of substandard performance)

In addition, the safety risk controls will be probably be implemented through changes in the certificate holders' manuals and thus violation of these new risk controls would reflect failure to follow the manual in which the risk control was published. This set of violations could occur even if no other standard of the regulations was infringed.

This program has the potential to eviscerate the Administrative Procedures Act, as well as other statutes that affect regulatory compliance. It would do this by permitting the FAA to enforce new pseudo-regulatory standards (risk controls) on a company-by-company basis even though those standards had not been promulgated in accordance with the Administrative Procedures Act.

The FAA has made it clear that under the expected SMS rules, mitigations will, at times, be expected to go beyond the scope of the current regulatory standards. This has been stated orally by FAA personnel discussing SMS in public fora, and it has also been admitted in the NPRM Preamble. Page 68227 of the NPRM, for example, suggests that a company assumes unnecessary risk by using a Part 65 mechanic to obtain

maintenance services, despite the fact that using a Part 65 (Airframe and Powerplant) mechanic for maintenance is permissible under current regulatory standards. E.g. 14 C.F.R. §§ 61.85, 61.85, 61.87. Thus, it appears that SMS mitigations will impose new safety standards (differing on a company-by-company basis) which impose new requirements that are not described in the regulations, and that have not been promulgated through the existing APA and other statutory protections normally associated with rulemaking.

- Because using part 65 mechanics is permitted under the regulations, but the preamble describes it as an unnecessary risk, this means that the FAA feels that compliance with the regulations is inadequate to meet safety requirements. This suggests that the FAA expects industry to identify regulatorily-compliant situations as nonetheless “unnecessary risks.”
- The regulated public cannot operate from an assumption that compliance is unsafe, because the public should be able to rely on those rules as minimum standards for safety.
- If the FAA believes that there are inadequacies in the rules, then the agency should be responsible for analyzing such inadequacies and imposing new standards under 49 U.S.C. 44701.
- The FAA-regulated element of SMS– the performance standard associated with SMS -- should be compliance with the regulations, and SMS should be a tool for ensuring compliance with the regulations.
- To the extent that a company’s SMS program identifies “mitigations” over and above the minimum standards of the regulations, but that are nonetheless desirable, these additional mitigations should fall outside the scope of the FAA’s regulations. This would not stop companies from using SMS to improve their processes beyond the scope of the regulations, but a company’s use of SMS for such additional purposes should not be within the scope of FAA’s regulatory authority.

Some, but not all, of these concerns could be addressed by implementing the enforcement mechanism suggestions discussed later in these comments.

Impediments to SMS Implementation in the Context of a Labor Agreement

There are some potential impediments to implementation of the SMS proposal that ought to be considered by the FAA.

It is possible that existing Labor Agreements may be inconsistent with the safety risk controls that appear to be required under the SMS NPRM.

One example can be found in the route bidding process. The route bidding process (which is based on seniority) leaves the least desirable routes for the most junior pilots. This means that routes that a risk analysis might dictate need a more senior pilot are being flown by more junior pilots. For example, a short northern route that is frequently subject to winter icing and other weather extremes might be undesirable to more senior pilots; but it is also the sort of route on which weather-related hazards are most likely to

arise. A logical risk control would be to assign at least one pilot with greater-than-average seniority to these routes in order to gain the benefit of their experience in addressing weather-related hazards. But the current standard practice for bidding for routes permits more senior pilots to avoid these less-desirable routes. These standard practices tend to be negotiated elements of the collective bargaining agreements, and as such they cannot be unilaterally changed by air carriers; moreover it may be nearly impossible for air carriers to obtain concessions to change such practices during periodic labor contract re-negotiations.

As a consequence, the current norms for assigning pilots to routes are less likely to be successful in controlling risks, but they appear to be nearly impossible to change, on a practical level. Risk management and the bidding process commonly used in the industry thus appear to be incompatible.

This concern is not limited only to pilots. More senior mechanics tend to get daytime shifts while more junior mechanics are assigned evening/night shifts – despite the fact that a risk mitigation analysis may suggest that adding additional senior (experienced) mechanics to evening/night shifts would better mitigate risks, because more significant maintenance is typically performed during the evening/night shifts.

The labor agreements typical in the industry would be likely to prevent any mitigations that would abandon the seniority system, which means that the least desirable jobs (which might benefit from more experienced/senior personnel) cannot have their risks mitigated through the assignment of more senior personnel. We would like to know, how does the FAA expect the companies to address conflicts between SMS and negotiated labor agreements?

Because of the potential for conflict between risk controls and existing labor practices, we recommend that the FAA fully implement this rule for air carriers and then analyze the relationships between SMS and labor agreements before implementing SMS against other certificate holders in the industry. Because the industry can be slow to change existing safe practices in favor of new and untested practices, we would like to see the SMS rule implemented through multiple labor cycles (more than two sets of labor negotiations within the same bargaining unit) in order to see how labor negotiations affect the implementation and use of the SMS program. After such a period, industry and the government should be better able to analyze the data and come to conclusions concerning the interface between collective bargaining and SMS.

Establish an Enforcement Policy Consistent with the ICAO Recommendations

Enforcement is not always necessary

The threat of enforcement action is not necessary in order to achieve positive regulatory results. ICAO's Safety Management Manual makes it clear that ICAO anticipated that

SMS programs would permit certificate holders to identify and correct issues in a non-punitive environment.

The FAA's Voluntary Industry Distributor Accreditation Program (AC 00-56) carries no penalties and few regulatory incentives, but it has been lauded as a positive force in aviation safety. The only penalty associated with this program is the threat of revocation of accreditation, but the marketplace has made this threat a viable mechanism for assuring continued compliance.

A similar example is the accreditation programs of voluntary organizations such as Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC). This program carries no penalties beyond revocation of accreditation. Nonetheless, the 770 companies, universities, hospitals, government agencies and other research institutions in 31 countries that have earned AAALAC accreditation take it very seriously and compliance rates with the AAALAC standards are excellent.

The EPA Energy Star program is another example of a government program that has achieved substantial results with modest incentives and no penalties.

Another government program that has no regulatory force but has been a significant instrument of compliance to standards is the National Institutes of Health (NIH) Recombinant DNA Guidelines, which have no regulatory force but are carefully followed by research universities.

These examples show that voluntary guidelines can have a significant effect on an industry in order to promote change. And the benefit of these voluntary guidelines is that it is significantly easier to design a program that is targeted to meeting the program's goals (aviation safety, in our case) when the system is flexible enough to permit the company to develop new ideas with the support of a government agency without fear that improper implementation will lead to punitive action.

Limit Enforcements

ICAO has recommended that each State implement an enforcement policy in conjunction with SMS. ICAO suggests that enforcement action be waived for events that are reported to the FAA, addressed through the mechanism of SMS, and that reflect errors or unintentional violations. ICAO would distinguish errors and unintentional violations from cases involving gross negligence, reckless conduct and willful deviations (which ICAO feels should warrant enforcement action).

ICAO has recommended that States "develop enforcement procedures that allow service providers to deal with, and resolve, certain events involving safety deviations, internally, within the context of the service provider's SMS, and to the satisfaction of the authority. Intentional contraventions of the [State's Civil Aviation Act] and the [State's Civil Aviation Regulations] will be investigated and may be subject to conventional enforcement action if appropriate. Safety Management Manual, ICAO Doc. No. 9859,

Chap 11, App'x 4 (2d Ed. 2009). This suggests that issues that are identified and addressed within the SMS should not lead to enforcement action. We support this suggestion, and recommend that the FAA adopt regulatory language consistent with this idea, such as the following:

5.7 Enforcement

(a) When a certificate holder operating under an SMS unintentionally violates a regulation under this Chapter (or is accused of violating a regulation), the certificate holder may choose to address that violation through the procedures of the Safety Management System.

(b) If the certificate holder chooses to address an unintentional violation through the procedures of the SMS:

(1) The certificate holder shall analyze the violation or alleged violation and shall use its Safety Risk Assessment and Control procedures of section 5.55 to identify the organizational or individual factors that may have led to the violation;

(2) The certificate holder shall identify proposed safety risk controls that meet the requirements of section 5.55(c);

(3) The certificate holder shall communicate the proposed safety risk controls to the certificate holder's certificate management office;

(4) If the proposed safety risk controls are acceptable to the Administrator, then the certificate holder's certificate management office and the certificate holder shall jointly agree on

(i) corrective measures and;

(ii) an action plan that adequately addresses the deficiencies that led to the violation or alleged violation and that affords the certificate holder a reasonable time to implement the risk control;

(5) Once the action plan has been implemented, the Administrator shall issue a compromise order with no civil penalty to close the alleged violation in accordance with the compromise order requirements of Part 13;

(c) The Administrator shall not use data generated or used in a Safety Management System as the basis for any enforcement action, nor shall the Administrator use such data as evidence in any enforcement action;

(d) The Administrator shall not use risk controls, nor any other output of the Safety Management System as the basis for any enforcement action, nor shall the Administrator use such risk controls or other output as evidence in any enforcement action.

Limit Unintended Use of Data

ICAO has recommended that States "promulgate an enforcement policy that ensures that no information derived from any SDCPS [Safety Data Collection and Processing Systems] established under the SSP or the SMS will be used as the basis for enforcement action, except in the case of gross negligence or willful deviation." Safety Management Manual, ICAO Doc. No. 9859, Chap 11, App'x 2 (2d Ed. 2009); see also Safety Management Manual, ICAO Doc. No. 9859, Chap 11, App'x 4 (2d Ed. 2009).

We recommend that the FAA adopt regulatory language consistent with this idea, such as the language proposed in the prior section. We also feel strongly that no SMS program should be adopted until additional statutory language protecting data (consistent with ICAO recommendations) has been issued.

Alternative Ways to Accomplish the Goals of the Proposed Rule

What is the fundamental purpose or goal of SMS? We feel that this should be explicitly stated, so that industry can have an opportunity to comment on whether SMS is the best way to reach the FAA's intended goal.

From the text of the regulation, it appears that the intended goal is to create a management tool that will help to ensure compliance to the substantive regulations, without changing the substance of those regulations.

Consider Alternatives that Eliminate Regulatory Redundancies

SMS should be an imbedded rule (e.g. the terms of SMS should be inserted into Part 119 or Part 121) and not a stand-alone rule (i.e. there should not be a new Part 5).

The FAA has made it clear that its long term goal is to have SMS apply to many different types of certificate holders. E.g. Safety Management Systems for Part 121 Certificate Holders, 75 Fed. Reg. 68224, 68232 (Nov. 5, 2010). The logic of a separate Part 5 is that it permits uniform SMS standards to be applied uniformly to different types of certificate holders. The problem with this proposal, though, is that different types of certificate holders are already subject to very different regulatory standards. For example, the latest changes to the manufacturing rules, which become effective April 16, 2011, require manufacturers to have very rigid quality assurance systems that ensure that operations remain uniform. There are already regulatory standards that require Safety Risk Analysis for manufacturers in the design phase, like 14 C.F.R. §

25.1309, which requires a Failure Mode and Effects Analysis (FMEA). A similar requirement does not seem to exist under Part 121. Thus, a Part 5 regulation that applies to air carriers would have to include more requirements for safety risk management, as compared to a Part 5 regulation that applies to manufacturers, because some safety risk management is already encompassed in the manufacturing regulations. Because Part 5 would not be able to apply uniformly to all certificate holders (due to redundancies and inconsistencies with existing regulations for other certificate holders), it does not make sense to create a separate Part 5 that is anticipated to apply uniformly to all certificate holders.

Since the proposed Part 5 will only apply to air carriers, it makes more sense to place this rule in the air carriers section of the regulations, in order to ensure that it is easily visible to air carriers and would-be air carriers who are perusing the rules to identify their compliance obligations.

The embedded rule should be subject to a gap analysis in order to avoid redundancies with existing requirements under the regulations. Each of the SMS ARC committees (Operations, Maintenance, and Design & Manufacturing) developed gap analyses that showed where the SMS proposal was already addressed in their respective existing regulations. These analyses were submitted to the FAA as part of the SMS report from the ARC. The FAA could use these analyses as baselines for performing gap analyses to identify SMS elements that are not yet addressed in the regulations. Then the FAA could limit their SMS promulgation to only those elements of SMS that are not already adequately addressed in the FAA regulations.

Consider Alternatives that Eliminate Industry Redundancies

Where hazards are identified uniformly in many air carriers, SMS will require redundant identification and risk analysis.

There is no easy way within the industry's grasp to share these analyses in order to provide shared benefits, nor is there any method within the scope of the rule that would permit a company to rely on a shared analysis performed by someone else (NPRM 5.55(c)(1) requires the certificate holder to perform the analysis itself).

There is no requirement to share this SMS information and analysis so other carriers will not get the benefit of each others' analyses. Thus, in addition to the fact that the current structure require redundant analyses, the current structure also provides no incentive for those redundant analyses to be shared in a way that would permit companies to use other certificate holders' best practices in order to improve the scope of their own analyses.

It would be better to have a system in which identified hazards are reported to the FAA, so that the FAA could perform the risk analysis (eliminating needless costs associated with redundant analyses by each regulated party). In such a scenario, once the FAA has calculated the risks associated with each identified hazard, the FAA could then offer

appropriate mitigations, as necessary. In such a case, mitigations could be established by publishing guidance, where additional guidance to the industry was sufficient, or by promulgating uniform regulatory standards instead of having unequal mitigation requirements suggested by each individual SMS.

Uniform regulatory standards are preferable to unequal company-by-company mitigation requirements for several reasons, including:

- varying company-by-company mitigation requirements would create equal protection standards, as the FAA enforces different standards against every company
- varying company-by-company mitigation requirements could diminish safety because the FAA would have to re-educate itself as to the appropriate standards that apply to every different air carrier, which means that as a practical matter they may not be able to keep up with the different standards that would apply to each carrier
- varying company-by-company mitigation requirements could diminish safety because the identified safety standards will be non-uniform, and thus some carriers will have to meet higher standards than others (rather than having the FAA simply implement uniform safety standards that apply to all certificate holders)

Consider Alternatives that Better Define A More Limited Scope

The regulatory system developed by the NPRM suffers from a potential scope issue. The NPRM language fails to provide proper bounding for the actions that must be taken. Past history with regulations suggests that FAA inspectors will often require certificate holders to perform to the outer edges of the possible regulatory requirements based on the FAA inspector's own interpretations. Thus, we have a concern that unless there is adequate and explicit bounding on the scope of the rule, there will be unpredictable interpretations in the field, inconsistent implementations among certificate holders, and the rule will be interpreted by many field inspectors in a manner that is far different from the interpretations intended by the drafters.

The SMS rule defines a process that is used in order to identify hazards, and to select, implement, and assure the effectiveness of risk controls. It is a means to an end (safety and compliance) but it is not an end in and of itself. It is a mechanism.

The mechanism defined by SMS could be used to identify hazards in a wide variety of contexts. This makes SMS a powerful tool. But it also makes an unbounded SMS a very dangerous regulations, because it could potentially be interpreted in a very broad fashion to apply to anything that a certificate holder does. It could be interpreted to mandate risk controls in response to almost any hazard, regardless of how tenuous the relationship was between the hazard and safety/compliance. Our past history with regulatory interpretation by field inspectors has show that there are often a small number of government employees who will use vague language in the regulations to achieve their own goals - goals that may be inconsistent with the goals set by the

Administrator. For example, we seen cases in which the FAA field offices have tried to use vague language in the regulations to force certificate holders to comply with standards that were explicitly rejected in rulemaking actions (in at least one enforcement action of which we are aware, the FAA accused a certificate holder of non-compliance with a vague standard, where the preamble to the final rule had explicitly rejected the interpretation that was being advanced in the enforcement action).

This unbounded scope threatens to extend the authority of the FAA well beyond its current statutory authority, and also threatens to permit the field inspectors to commit FAA and industry resources to reach areas and subjects that the Administrator might prefer not to address.

Extending SMS to cover too much would make SMS a less useful tool, because the scope of SMS could be interpreted so broadly that it would be a practically impossible task to manage the data and assess the hazards within the scope of SMS. In such an interpretation, it would be necessary for a certificate holder to commit a tremendous amount of resources in order to remain in compliance with the regulation.

This unbounded scope also threatens to undermine the authority of the rule, itself. In past case law, courts have struck down interpretations of regulations that go beyond the reasonable and explicit scope of the rule, on the grounds that it must be possible for interested parties to reasonably anticipate the manner in which a regulation will be applied, or else, the public is robbed of a meaningful opportunity to comment on the rule. Mission Group Kansas v. Reilly, 146 F.3d 775, 781-82 (10th Cir. 1998).

In order to avoid extending FAA authority beyond its current statutory authority, and also in order to make SMS a manageable (and useful) tool for safety/compliance, the FAA should limit the scope of the SMS rule to compliance with existing FAA safety standards found in the FAA regulations.

We recommend that the FAA take the following steps in order to limit scope:

- (1) Create a very tightly bound definition of the term "hazard."
- (2) Set enforcement policies that make it clear that the FAA will not "second-guess" the decisions that are logically directed by SMS systems. We recommend adopting the following language:
- (3) Make it clear that a certificate holder is permitted to use its risk analysis to direct its limited resources to developing controls for the most critical hazards.

All three of these recommendations are addressed elsewhere in these comments.

Consider Third-Party Accreditation as a Model for SMS

Many ASA members have implemented quality assurance systems that meet some of the requirements of an SMS program. This has been accomplished voluntarily by the distribution industry as part of the Voluntary Industry Distributor Accreditation Program (VIDAP).

The Voluntary Industry Distributor Accreditation Program (VIDAP), was published by the FAA in Advisory Circular 00-56 in September 1996. The FAA set basic quality standards that they expected every accredited distributor to meet, and they chose several sets of industry standards (e.g. ASA-100 and ISO 9000) to supplement those quality standards. In order to become accredited, a distributor must meet both the standards established in AC 00-56 and also the additional standards set in the industry standard. This variety of supplemental industry standards permits companies to establish a Distributor Accreditation System that meets the individual needs of the company while still supporting the safety performance goals published in the FAA and industry standards.

Through voluntary standards, a noticeable change has occurred in the aircraft parts distribution industry. Distributors have become positive forces for safety in the industry – identifying potential safety issues and reporting them to appropriate authorities in order to resolve issues before they become safety problems.

The distributors have also had a positive effect on other sectors of the industry, for example the program has had a positive effect on documentation standards that are used to certify and ensure regulatory compliance, including a positive effect on enhancing traceability from the manufacturer to the end-user, especially for rotatable parts that may have had inadequate traceability in the past. This is an important addition to safety despite the fact that the FAA regulations do not require traceability.

For a more detailed account of the positive effects that distributor accreditation has had on safety, see [Voluntary Industry Distributor Accreditation Program \(AC 00-56\), FY 2004 Audit Report, prepared by Aircraft Certification Service & Flight Standards Service, FAA-IR-04-03 \(September 22, 2004\).](#)

If SMS were to be implemented as a third-party accreditation scheme, then there would be several advantages.

First, ICAO only requires international air carriers to have SMS programs - it does not require domestic carriers to have SMS programs. A voluntary SMS accreditation program would permit the carriers who need to obtain SMS in order to operate internationally to obtain such accreditation, while permitting domestic operators who do not need to obtain SMS to abstain from the program.

Second, it avoids the cost-benefit problems of the current SMS rule - the benefits that have been identified are speculative benefits that would not be realized directly from SMS - rather they would be realized as a consequence of risk controls that SMS programs are expected to produce.

Third, it avoids the legal problems and enforceability problems associated with a program in which the expected benefits are based upon risk controls that certificate holders would self-impose, and that the FAA may or may not treat as enforceable standards once they have been self-imposed.

Fourth, it avoids the need for FAA to allocate significant resources to the oversight of the program. The AC 00-56 program has been a very successful public-private partnership that has achieved its safety goals with only minimal FAA oversight.

Fifth, such a program could be based on minimum standards established by the FAA and audited by third-party accreditation organizations, and still be recognized by the international community. The NBAA's International Standard for Business Aircraft Operations (ISBAO), for example, has achieved significant recognition in the international community.

Sixth, the FAA could limit its regulations and its regulatory oversight to the framework for SMS, and the oversight framework for the accreditation organizations, and then the FAA would merely need to approve implementation standards (like it approves AC 00-56 standards).

Consider Setting a Simple Performance Based Rule, and then Publish SMS as One Way to Meet that Goal

As drafted, because it is a process-based standard rather than a performance-based or goal-based standard, the SMS NPRM runs the risk of inhibiting future systems that might permit more effective approaches to safety management. We recommend that the FAA needs to significantly revise this rule to make it performance-based (goal-based).

One option might be to rescind almost the entire NPRM and reissue the rule text as an advisory circular providing the basic ideas about safety management. The final rule that could then be issued would be a simple requirement for the company to have a system to predict reasonably possible non-compliances and to develop risk controls to avoid them (and SMS could be one way but not the only way to achieve this goal).

Terminology

"System"

The proposed rule uses the word "system" in several different ways, and these different uses may be mutually exclusive. For example, in one place, the certificate holder is required to develop systems to acquire data, so systems are data acquisition mechanisms. Proposed 14 C.F.R. § 5.71(a) (Safety Performance Measurement and

Monitoring) (“The certificate holder 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”). In another, the certificate holder is required to develop a system for voluntary reporting. Proposed 14 C.F.R. § 5.71(a)(7) (“A confidential employee reporting system in which employees can report, including, but not limited to: Hazards, issues, concerns, occurrences, incidents, as well as propose solutions and safety improvements.”). Each of these uses implies a discrete system for supporting analysis. These two uses of the term “system” are fairly consistent; however the use of the term “system” goes another direction entirely in proposed section 5.5. Section 5.5 states that “*Safety Risk Management* means a process within the SMS composed of describing the system, identifying the hazards, and analyzing, assessing and controlling risk.” Proposed 14 C.F.R. § 5.5 (definitions). In this section, the term “system” seems to connote the entire business structure subject to FAA oversight.

The expansive connotation of the term “system” is consistent with the definition of the term “system” found in FAA Order 8000.367. This connotation, however, is inconsistent with the uses of the term “system” which imply discrete systems for accomplishing analysis.

Where the term “system” has been used to mean the entire regulated organization, we recommend that the FAA adopt the term “organization” in place of the use of the term “system.”

“Organization”

We recommend that the FAA adopt a definition of the term “Organization.”

In several places in the NPRM, the term “system” has been used to mean the entire regulated organization. Where the term “system” has been used to mean the entire regulated organization, we recommend that the FAA adopt the term “organization” in place of the use of the term “system.”

"Hazard"

The term "hazard" must be bound by aviation safety. If it is not then it goes beyond the scope of the FAA's statutory authority. In addition, because certificate holders have a broad mandate to identify hazards, the scope of the hazards that must be identified needs to be carefully limited or else the mandate will be a never-ending mandate, and it will be impossible to comply with the requirements of the rule because it will be impossible to say that one has identified all of the hazards associated with a change in a system (or any other activity described in NPRM 5.51 that generates a requirement to identify hazards).

With some exceptions, aviation safety generally reflects the limit of the FAA's powers. Congress has delegated to the FAA regulatory authority with respect to safety in air

commerce. The minimum standards associated with aviation safety are generally defined by the existing FAA safety regulations.

If the FAA goes outside of the scope of the existing statutes and regulations to require non-aviation safety hazards to be identified, then such regulations would be operating outside of the scope of the FAA's statutory authority. In addition, certificate holders would find themselves operating with a set of definitions that become void for vagueness because they are not bounded by any sort of regulatory standard nor a statutory standard.

The ARC's Design and Manufacturing Workgroup agreed that the definition of hazard should be changed as follows:

“Hazard means a condition that could foreseeably cause or contribute to an aircraft accident.”

It is important that the FAA adopt a reasonable interpretation of the term "foreseeable." In the proposed guidance for the Transport Aircraft Risk Assessment Manual, the FAA proposed a definition of the term "foreseeable" that significantly diverged from the interpretation of that term that has been used in the past. It would include conditions that might conceivably occur - this is different from the common understanding of the term "foreseeable" which is usually limited to dangers reasonably anticipated by a person of ordinary intelligence and prudence. See, e.g., *Augenstine v. Dico*, 481 N.E.2d 1225, 1228. Thus, we ask that the FAA refrain from defining term "foreseeable" in its guidance in a manner that differs from common understanding of the term.

"Accident"

The ARC's Design and Manufacturing Workgroup agreed that the FAA should publish the 49 C.F.R. 830.2 language defining "aircraft accident" as the definition of "accident" for SMS purposes.

Section by Section Analysis

Introduction

Although we feel that there are significant systemic issues that ought to be addressed in the SMS proposal before changing the details of the rule, we have offered the following detailed changes in order to help improve the text of the rule. Specific recommended language can be found in red print in these comments.

NPRM § 5.5

5.5 – SRM requires description of the system. What system is required to be defined? The system that the FAA directly regulates through certification? How do you describe it? What level of detail is required in a description? Why do you describe it?

NPRM § 5.51

In NPRM § 5.51, the NPRM does not explain what it means to “apply safety risk management.” This is a vague term. Section 5.55 describes a requirement to define processes “to analyze safety risk associated with the hazards identified in § 5.53(c)” and to “conduct[] risk assessment.” It appears that use of these defined processes would reflect application of “safety risk management.” It would be better practice to specify what is being applied in order to create a more obvious connection between the disparate regulations. We therefore recommend that the phrase “apply safety risk management” be replaced with a requirement to apply the safety risk management processes found in the subpart. Language implementing this suggestion can be found below.

As discussed elsewhere in these comments, the word “system” is used throughout the NPRM in various ways denoting clearly disparate meanings. In NPRM § 5.51, the NPRM says that the “certificate holder must apply safety risk management to a system” but it does not explain what system must be the subject of safety risk management. This matter was discussed by the SMS Aviation Rulemaking Committee's Design and Manufacturing Committee, and that group's consensus agreed that this section uses the term “system” to mean the entire range that is subject to your SMS analysis (e.g. NPRM 5.51's purpose in using the term “system” in this clause is to set the boundaries for where you need to look for hazards). We recommend that this language be made more precise in order to specify what system is subject to safety risk management.

§ 5.51 Applicability.

A certificate holder must apply the safety risk management processes found in this subpart to a system defined under section 5.53(a) under any of the following conditions:

- (a) Implementation of new elements of the system.
- (b) Revision of existing elements of the system.
- (c) Development of operational procedures.
- (d) The safety assurance processes in subpart D of this part result in the identification of hazards or ineffective risk controls.

NPRM § 5.53

This section requires the certificate holder to "have a process to describe and analyze the system for use in identifying hazards." This statement appears to require the certificate holder to develop a process for description and analysis; but it is overly wordy and unclear.

This section raises many questions. How do you describe that system? How detailed do you need to be in identifying the system? Why do you need a process for describing the system (rather than simply describing the system)?

Another important question raised by this proposed text is, what happens if a company identifies hazards through an alternative method (e.g. through intuition) – is there a problem if the certificate holder analyzes a hazard that was identified outside the scope of the hazard identification system?

In order to clarify this section, we recommend much simpler language (a related language amendment found in section 5.51 is also required, as seen above):

§ 5.53 System analysis and hazard identification.

(a) The certificate holder must define the system that is subject to safety risk management under its certificate.

(b) The certificate holder must develop and maintain a process for identifying hazards in its system. In defining the process, the following information 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.
- (4) The personnel, equipment, and facilities necessary for operation of the system.

(c) When safety risk management is required to be applied to a system, the certificate holder use the process defined under subsection (b) of this section in order to identify hazards. The certificate holder may also identify additional hazards that are not identified by the process defined under subsection (b) of this section, but is not required to do so.

NPRM § 5.55

In NPRM § 5.55 there is a need to find that a risk will be acceptable before implementing a proposed safety risk control. Past history with the term "acceptable" has suggested that some FAA employees will "second-guess" decisions made by

certificate holders, and will attempt to assert their own business judgment in lieu of that of the certificate holder in identifying what is "acceptable."³

Like section 5.53, this section also requires the certificate holder to "have a process." The standard associated with this requirement is vague in that it draws reference to the regulations without using the regulations as a standard. We recommend specifically using the regulations as the standard performance standard for the resulting risk controls.

Language implementing these suggestions would look like this:

§ 5.55 Safety risk assessment and control.

(a) The certificate holder must develop and maintain a process for identifying the safety risk posed by each hazard identified in § 5.53(c).

(b) The certificate holder must develop and maintain a process for developing safety risk controls that are necessary as a result of the safety risk assessment process under paragraph (d) of this section.

(c) The certificate holder must compare each safety risk identified under paragraph (a) of this section to the acceptable safety risk defined by the applicable regulatory requirements set forth in this Chapter.

(d) For each safety risk that does not meet the acceptable safety risk standards defined by the applicable regulatory requirements set forth in this Chapter;

(1) The certificate holder must develop safety risk controls calculated to reduce the safety risk to within the standards defined by the applicable regulatory requirements.

(2) The certificate holder must evaluate whether the risk will be acceptable with the proposed safety risk control applied, before the safety risk control is implemented.

³ The drafter of these comments is an attorney who has represented certificate holders in more than one case involving an FAA employee's assertion that manual provisions were "unacceptable" despite the fact that the only objective standard suggesting unacceptability was the personal judgment of the FAA employee. Such cases are usually eventually dropped, dismissed, or won by the respondent; but in many more cases the certificate holder adopts the business judgment of the FAA employee in order to avoid the expenses of litigation. These cases in which the certificate holder adopts the business judgment of the FAA employee reflect an instance of the FAA asserting requirements that are outside of the cope of the FAA's authority. Once these business judgments are incorporated into the certificate holder's manuals, though, they become enforceable by virtue of the regulatory requirements that enforce compliance with the certificate holder's manuals. In this way, the FAA employees are able to create standards that become enforceable as *de facto* regulatory standards despite the fact that the standards were not subject to the restrictions and formalities of the Administrative Procedures Act and other laws that affect rulemaking.

(3) The safety risk controls must, at a minimum, require compliance with the applicable regulatory requirements set forth in this Chapter.

NPRM § 5.71(a)

This section would mandate a vast open-ended data collection requirement. The requirement would be redundant and wasteful of resources, in that every certificate holder would be required to collect the same data in parallel.

It would be much more efficient and effective for certificate holders to serve as the sources of the data and for the FAA to perform the analysis. This model is already in place in the mechanism found in 14 C.F.R. § 121.703. To the extent that a data collection mechanism is already in place for collecting service difficulties and reporting them to the FAA, we recommend that this entire section be eliminated and that the FAA amend 14 C.F.R. § 121.703, to the extent necessary, in order to make sure that appropriate data is being provided to the FAA.

To the extent that data about the air carrier's own system is needed for the air carrier's own SMS analyses, that data is already being collected under 5.73, and therefore does not need to be redundantly collected under 5.71.

There are numerous undefined terms in this section. In NPRM § 5.71(a)(1), what does the FAA mean by “continuous monitoring?” Does the monitoring need to be in place 24 hours a day? This would impose a significant oversight and data review burden that is not represented in the cost-benefit analysis, and that might not produce any benefit that would be significantly more beneficial to safety than periodic review.

Section 5.71(a) must be redrafted to establish reasonable limits on the scope of data collection. Because it is more reasonable for the FAA to collect this data and analyze it, instead of requiring redundant data analysis, we recommend the elimination of NPRM 5.71(a) in favor of the existing service difficulty reporting mechanism.

NPRM § 5.71(b)

This section would mandate redundant analysis of data, in that every certificate holder would be required to analyze the same data in parallel.

Section 5.71(b) must be redrafted to establish a reasonable mechanism for data analysis. Because it is more reasonable for the FAA to analyze this data, instead of requiring redundant data analysis, we recommend the elimination of NPRM 5.71(b).

NPRM § 5.71(a)(5)

In NPRM § 5.71(a)(5), the rule is meant to describe the collection of data with respect to accidents and incidents. The way it is drafted, though, it suggests a need to have a process for investigation (rather than a process for collecting data from investigations).

Investigation of accidents and incidents falls within the jurisdiction of the NTSB, and businesses are not automatically assured party status to an accident investigation; therefore businesses may not have the ability to directly participate in an investigation.

NPRM § 5.73

This rule requires safety performance assessment. It requires reviews by the accountable executive of the certificate holder's safety performance, but such a specific requirement for review seems unnecessary in light of the accountable executive's obligations found in section 5.25.

We also recommend changing the requirement of subsection (b) because it repeats a requirement already found in subpart C - our proposed language makes this section and the related language of subpart C integrate together more naturally.

Our recommended language follows:

§ 5.73 Safety performance assessment.

- (a) The certificate holder must periodically assess its safety performance.
- (b) The safety performance assessment shall audit to ensure:
 - (1) That the certificate holder is in compliance with the applicable regulatory requirements of this Chapter.
 - (2) That the certificate holder's risk controls established pursuant to section 5.55 are effective in achieving regulatory compliance.
 - (3) That the Safety Management System is performing according to the certificate holder's standards and expectations.
 - (4) That any changes in the operational environment that may introduce new hazards are identified.
- (c) Where the safety performance assessment identifies noncompliance, ineffective risk controls, substandard performance of the Safety Management System, or changes in the operational environment, the certificate holder shall apply safety risk management to the certificate holder's system as necessary.

NPRM § 5.75

This section mandates correction of certain findings from the NPRM 5.73 analysis, without regard to the results of the risk assessment. This mandate should be limited to the regulatory non-compliances discovered by the assessment. Correction of the other findings should be subject to the results of the risk analysis.

Thus, if the NPRM 5.55 risk analysis does not mandate mitigations for otherwise compliant situations (e.g. the safety risk is within the parameters established by the FAA), then this section should not mandate mitigations.

We therefore advise that this section be updated to mandate only mitigation of non-compliances (other findings will still be mitigated under 5.55 if the risk analysis dictates that they must be mitigated).

§ 5.75 Continuous improvement.

Notwithstanding the results of any risk analysis required by § 5.55, the certificate holder must establish and implement risk controls to correct non-compliances identified under § 5.73(b)(1).

NPRM § 5.91

NPRM § 5.91 uses the phrase “attain and maintain.” This has been described by FAA employees discussing SMS as representing initial and recurrent training. It would be more straightforward to explicitly describe this as initial and recurrent training. The draft rule requires personnel to be “trained to the qualifications necessary to perform that person’s duties.” This is unnecessarily vague language that is undefined and could be highly fluid because it is subject to interpretation. It is much more straightforward to require training related to the person’s duties under Part 5, and to make it clear that the training is meant to be initial and recurrent. Here is a rewrite of proposed section 5.91 that could be used to meet these standards:

5.91. Competencies and Training.

(a) For each individual identified in § 5.23 of this title, the certificate holder shall identify the minimum qualifications necessary to perform that person’s duties under this part;

(b) The certificate holder shall ensure that each individual identified in § 5.23:

(1) Is trained to the qualifications necessary to perform that person’s duties under this part; and

(2) Receives recurrent training as necessary in order to maintain the qualifications necessary to perform that person's duties under this part.

NPRM § 5.93

Employees are required to be trained to a great many different topics. Therefore, in the current environment, it is important to limit the training that employees receive to training that adds value to the employee's efforts. Employees need to know how to report hazards. They need to know how to identify hazards and data that ought to be (or may be) reported. Employees need to know that there is a closed-loop system that values their reports. But all of these training elements are likely to fall within the scope of the training requirement under 5.91.

There are many other elements of the SMS that do not need to be understood by everyone in the company. For example, employees who are not charged with analyzing data do not need to understand how the company analyzes the data in order to support the SMS.

Furthermore, there appears to be a requirement to communicate data to company personnel but no correlative obligation to do anything with that data, nor is there any specific purpose for these communications.⁴ Thus, there is no real reason for this communication. This is communication for the sake of communication - not for the sake of safety.

Such communication requirements could overwhelm personnel with data and explanations, so that when truly important safety data is shared, the important data is lost in a sea of communications. This could undermine safety by causing important safety communications to be lost or ignored in the vast overwhelming sea of communications that is rule would appear to require.

In addition, there does not appear to be any additional SMS or safety benefit to explaining why actions are taken. In fact, this sort of explanation could undermine safety if personnel decide to ignore risk controls because they believe that they have a better way to approach the same stated goal. We recommend specifically dropping the requirements to explain and justify in writing the actions taken by the company.

We also recommend changing the requirement to ensure personnel are aware of the SMS, to a more objective requirement to convey to personnel the existence of the SMS.

⁴ This can be contrasted with the Material Safety Data Sheet requirements of the Occupational Safety and Health Act, which serve a specific purpose of making chemical hazard data available to people who may need it. In that Act, the objective data that is specifically needed by the public must be made available to the public, but subjective explanations (like why safety procedures are necessary) are not part of that data and the data need merely be made available - there is no need to develop a documented means for communication so long as the information is made available.

It is easy to test whether personnel have been exposed to the existence of the SMS, but the current construct of the regulation would provide for a regulatory violation in the event that an employee forgot about the existence of the SMS (which seems to reflect an absurd standard that would require the company to focus training on the existence of the SMS instead of implementation of risk controls).

For these reasons, we recommend changing the requirements of NPRM 5.93 to more narrowly address the communications that are necessary:

§ 5.93 Safety communication.

The certificate holder must develop and maintain a means for communicating safety information that, at a minimum:

(a) Conveys to all personnel the existence of the SMS.

(b) Conveys risk control information to the personnel who need to know that information.

Questions to Be Answered in the Final Rule

In order to be able to develop compliance programs that meet the FAA's requirements, the industry feels that it is important for the FAA to provide answers to the following questions. In order to do this, the FAA may either provide clear regulatory statements, or else should provide explicit answers to these questions in the preamble to the Final Rule.

- What objective standards will the FAA use for specifying hazards that the FAA feels should be identified by a certificate holder's hazard identification system?
- What will the FAA do if it discovers that a certificate holder has not identified a hazard that the FAA feels that the certificate holder should have identified? Will the FAA require risk analysis of alleged hazards that the FAA identifies through informal means but that the certificate holder believes to be outside of the definition of the term "hazard?" If the certificate holder disagrees with the FAA's hazard identification, then is there any way for the certificate holder to seek independent review of such a identification?
- Will the FAA have an objective standard for reviewing the substance of a certificate holder's risk controls? If so, then what will be the FAA's objective standard for reviewing the substance of a certificate holder's risk controls?
- What will the FAA do if it disagrees with the substance (not the effectiveness) of a certificate holder's risk control? If the FAA disagrees with the substance of a

certificate holder's risk control, and declares that it is unacceptable, then is there any way for the certificate holder to seek independent review of such a decision?

- How will the FAA evaluate the effectiveness of a risk control?
- What will the FAA do if it disagrees with a certificate holder's evaluation of the effectiveness of a risk control? If the FAA disagrees with a certificate holder's evaluation of the effectiveness of a risk control, and declares that it is unacceptable, then is there any way for the certificate holder to seek independent review of such a decision?
- How does the FAA expect the companies to address conflicts between SMS and common industry practices such as those found in FAA guidance or those found as typical standards in negotiated labor agreements?

Your consideration of these comments is greatly appreciated.

Respectfully Submitted,

A handwritten signature in black ink that reads "Jason Dickstein". The signature is written in a cursive, flowing style with a large initial "J" and "D".

Jason Dickstein
General Counsel
Aviation Suppliers Association