In this monthly column, Ric Peri of the AEA's Washington, D.C. office, informs members of the latest regulatory updates.

THE VIEW FROM WASHINGTON

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SMS: One Size Does Not Fit All

How many times have we heard political pundits pontificate that they recognize "one size does not fit all," then continue to promote their vision of safety management systems for the aviation industry? And the technical "experts" continue to measure effectiveness of the programs against a single standard.

There is a fundamental difference between operations and maintenance. And there is a fundamental difference between "in-house" maintenance and contract maintenance.

The FAA's 14 CFR Part 91 begins with a profound statement: "In an in-flight emergency requiring immediate action, the pilot-in-command may deviate from any rule of this part to the extent required to meet that emergency."

In addition, many of the operational rules of Part 91 are "judgment" rules. Operational decisions often are subjective.

Maintenance, on the other hand, is highly prescriptive. Because Part 43 mandates "each person performing maintenance, alteration or preventive maintenance on an aircraft, engine, propeller or appliance shall use the methods, techniques and practices prescribed in the current manufacturer's maintenance manual," there is no provision for subjective judgment or deviations from the standards.

The AEA has spent the past five years evaluating the elements of SMS throughout the world. There have been no less than half a dozen presentations at the AEA's annual conventions throughout the years. And, to this day, we still defend our objection to the ICAO mandate.

First, we object to ICAO's introduction of an "unproven" concept, such as SMS in an aviation environment, with the national aviation authorities knowing that as a standalone mandate it fails to meet the regulatory mandates and protections fundamental in most developed countries.

Mind you, the NAAs proposing SMS, then arguing they simply are complying with ICAO, are being disingenuous — their "technical experts" were the ones on the ICAO working group who introduced SMS in the first place. ICAO should be harmonizing proven processes throughout the aviation world, not mandating new and novel concepts. With all of the challenges developing aviation authorities are having introducing SMS into their charges, how can ICAO reasonably expect developing authorities to implement these programs?

The ICAO model is "one size fits all," but not to the whole of aviation. The ICAO model tells the NAAs "they" (the authorities) should have a system safety approach, which requires air carriers to integrate the elements of SMS into their operations.

By the way, these arguments now are moot in the United States, at least for airlines (and likely airline contractors). Under Section 215 of the Airline Safety and Federal Aviation Administration Extension Act, Congress has mandated SMS for all Part 121 air carriers and further defines the term "safety management system" to mean the program established by the Federal Aviation Administration in Advisory Circular 120-92.

Congress has given the FAA 90 days after the date of enactment of the Airline Safety and Federal Aviation Administration Extension Act (Aug. 1, 2010) to publish a notice of proposed rulemaking. This means the long-awaited NPRM for SMS should be published before Dec. 1, 2010, with a final rule by the end of 2012.

There is some logic for the need for a basic air carrier safety management system. Forget all of the arguments and rhetoric for a moment. There are three elements (four, if you include recordkeeping to the basic SMS program): risk analysis and mitigation, incident management, and measuring the effectiveness of the solutions.

For an industry where subjective decisions are being made constantly (such as flight operations), formalizing decision-making is a logical safety improvement. With a proven record showing every accident is predicted by hundreds of similar incidents, incident management is the logical next step to safety improvement, and some level of measurement is something for which we routinely challenge the NAAs —

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they seldom use a measure of effectiveness after they propose a rule to resolve a safety problem.

Maintenance, however, is different. Maintenance is a service provider where the design of the business is regulated (Part 145); the performance of our tasks is regulated (Part 43 and 65); and, as a service provider, the level of our service is delegated by contracts with our customers. We make very few objective decisions not prescribed by regulations. As a result, for maintenance, there is a very close parallel between quality management systems and the technical elements of an SMS.

In his article "An Ounce of Prevention: Parallels Between QMS and SMS Components," Cliff Marshall, technical program manager of the Technical Program Evaluation and Coordination, Standards, Civil Aviation for Transport Canada, draws the parallels between quality management system and safety management systems. In the article, he accurately points out, "QMS integrates a set of policies, processes and procedures required for managing structure, responsibilities, procedures, processes and management resources to implement the principles and action lines needed to achieve the quality objectives of an organization. An SMS shares this structure; however, the focus is on safety objectives rather than product quality issues." (See the link in this month's "International News & Regulatory Updates.")

Mr. Marshall, we are in painful agreement. However, this article is written about aviation in general. The general aviation electronics segment is a limited sector of this industry and it makes few subjective decisions. As such, the other elements outside of QMS are limited.

There is room for adding risk assessment and mitigation with objective decisions as prescribed by Part 145, but the process is much different than decision-making of subjective decisions. Part 145 prescribes what decisions must be made as a function of operating a repair station, but AC 145-9 does not define how those decisions are to be made or what risks should be addressed.

For a maintenance organization, a fully functioning QMS does embrace incident management. Keep in mind, as a service provider for maintenance, those aviation safety areas within the control of the repair station are related directly to the airworthiness of the product they are maintaining. A fully functioning QMS captures quality escapes, evaluates the risk, mitigates the risk, and then implements corrective actions. Any further failures of the same escape would be captured again. Possibly adding employee and customer reporting as triggering elements for QMS would be reasonable.

This does not assume every industrial safety or environmental or human resource failures will be captured by an aviation safety management system. But the NAAs typically don't have authority over occupational safety, environmental management or human resource issues (unrelated to human factors in maintenance) throughout the repair station.

While I agree with Marshall's evaluation of the parallels between QMS and SMS, if we take the limitation of a contractual service provider and the limitations established by the legislative bodies regarding the NAA's oversight of the maintenance organizations, what additional functions does SMS bring to the table? A risk-based methodology for making required decisions.

When Part 145 requires a repair station to "provide qualified personnel to plan, supervise, perform and approve for return-to-service, the maintenance, preventive maintenance or alterations performed under the repair station certificate and operations specifications" (§145.151b), SMS provides the methodology to do a risk assessment and mitigation with respect to this question.

When Part 145 requires a repair station to determine if it has "sufficient work space" (§145.103 (2)i), SMS provides a risk-based methodology to evaluate and mitigate the risks associated with sufficient work space.

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Just as the political pundits reassure us "one size doesn't fit all," we know one approach doesn't fit all either. ❑