



International Civil Aviation Organization

**Aerodrome Certification Implementation Task Force
(ADCI TF)**

**Second Meeting
(Doha, Qatar, 12 – 14 May 2013)**

Agenda Item 4: Certification Process and Implementation Issues.

AIRPORT CERTIFICATION PROGRAMS IMPROVE AIRPORT SAFETY

(Presented by United States)

SUMMARY

Civil Aviation Authorities throughout the world face the challenge of providing quality, effective airport certification programs. Those efforts however are well rewarded as airport certification has been instrumental in improving airport safety and enhancing standardization of airport programs. Yet even though much has been accomplished in airport certification, we know there is still much to do. This paper discusses how the United States Federal Aviation Administration (FAA) places a high priority on improving airport certification and what we have done and are doing to enhance certification standards and programs. These initiatives include regulation updates, training, inspector qualification, technical standards, integration of technology, mitigation of wildlife hazards, and implementation of Safety Management Systems.

Action by the meeting is at paragraph 4.

REFERENCES

- 14 Code of Federal Regulations, Part 139, *Certification of Airports*
- ICAO Annex 14, Volume I, *Aerodrome Design and Operations*
- International Civil Aviation organization (ICAO) Document 9774, *Manual on the Certification of Aerodromes*.
- U.S. FAA Order, 5280.5, *Airport Certification Program Handbook*

1. INTRODUCTION

1.1. In the United States there are 546 airports certificated by the FAA under the provisions of 14 Code of Federal Regulations (CFR) Part 139, *Certification of Airports*. Those airports range in size from some of the busiest in the world, to small airports servicing only occasional charter flights. All however must meet the demanding requirements specified in the FAA airport certification regulation.

2. DISCUSSION

2.1. *Revision of the Certification Regulation:* Program improvement requires that the regulation associated with airport certification be continuously monitored, and periodically updated as necessary. The FAA Part 139 regulation, updated extensively in 2004, was further updated (March 2013) with clarification of language and with revisions to airport drivers training programs. In addition, we have other rule-making efforts in progress related to improvements in certification program elements.

2.2. *Airport Certification Inspector Selection, Qualification and Professional Development:* The FAA has 44 credentialed Airport Certification Safety Inspectors (ACSIIs) to manage compliance with airport certification. Those inspectors work from nine (9) regional offices throughout the country. ACSIIs, along with headquarters staff, work to ensure that certificated airports comply with the standards of safety in Part 139. It is a complex, demanding job that requires skill in many program areas. Most importantly, an ACSI is expected to apply compliance and enforcement tools, including the provision of administrative or civil penalty actions to ensure that airports remain in compliance. As the ACSI position in the FAA requires wide ranging skills and qualities, current FAA airport inspectors come from varying fields and backgrounds. All inspectors however undergo rigorous training and qualification that includes resident training, non-resident training, and on-the-job (OJT) qualification, before becoming credentialed.

2.3. However, as capable as our cadre is we know that we need to provide improved training and qualification programs. We have initiated an evaluation and redesign of our inspector selection, qualification and training programs using instructional systems design (ISD). We anticipate that through a field survey, completion of a gap analysis, formation of a subject matter expert program group, and development of a program evaluation design document, we will be able to accomplish:

- A complete redesign of the initial training curriculum for all ACSI inspector staff.
- Identification of performance gaps that need to be addressed.
- A reevaluation of professional development needs.
- Data that can be used by FAA and Civil Aviation Authorities throughout the world to consider critical inspector training and development initiatives.

2.4. *Runway Safety Initiatives:* The FAA has implemented a comprehensive runway safety program in the United States. It includes the use of Runway Safety Action Teams (RSATs), development of runway safety action plans at all towered airports, and publication of runway safety best practices. The RSAT group, which integrates all stakeholders at the airport, is the most important tool used to improve, runway safety. Much has been done to improve RSAT effectiveness and efficiency.

2.5. Changes to airport infrastructure and procedures have also been implemented throughout the United States, including enhanced taxiway centreline markings, improvements to runway safety areas (RSA) and increased driver training for all those using the airport environment. Human factors changes have been made to policies for air traffic instructions and a voluntary reporting system for controllers has been implemented to aid in safety data collection and to incorporate safety management principles.

2.6. For many years the United States has also invested in advanced technologies for airfield safety. We continue to deploy technologies, such as Airport Surface Detection Equipment, Model X (ASDE-X) while pursuing newer technologies such as Runway Status Lights (RSL) and Foreign Object Debris (FOD) detection systems.

2.7. *Addressing Wildlife Hazards:* The worldwide threat from wildlife is increasing as populations of birds commonly involved in strikes are growing at the same time that air traffic rates increase. The FAA specifically addresses wildlife hazard management in Part 139. It requires that

certificated airports with a record of strikes, or who experience specific triggers, must conduct a wildlife hazard assessment (WHA), and if necessary develop a Wildlife Hazard Management Plan (WHMP). The FAA assists airports by providing grant funding for the WHA and WHMP. FAA also provides guidance in the form of Advisory Circulars that detail WHA/WHMP methodology. We also have two professional biologists on our staff. They provide guidance and assistance to our certification inspectors and to airport operators. We also have cooperative agreements with the United States Department of Agriculture.

2.8. A WHA is conducted over a one year period to consider seasonal wildlife threats. It informs the airport operator of the specific wildlife situation on and around the airport. It is consistent with the Safety Management Systems (SMS) tenet of proactivity and allows the airport operator to identify wildlife risks to airport safety and to mitigate those risks to acceptable levels. The WHA is conducted by a professional, qualified biologist and submitted to the FAA for review. It may show the need for a WHMP.

2.9. The WHMP documents the procedures the airport authority will implement to control wildlife, at or near the airport. It also describes the actions the airport authority will take to mitigate wildlife hazards, the resources required, and the responsible personnel. Actions recommended in the WHMP may take many forms, including; acquiring permits; developing and executing training; establishing communications systems; defining and delegating responsibility; establishing procedures for strike reporting and data collection; establishing procedures for wildlife control in and around the airport; establishing procedures for habitat management; securing adequate land-use controls for off-airport areas; and establishing the requirement to periodically reevaluate the WHMP. FAA has conducted extensive research in wildlife harassment and mitigation. That research and other wildlife guidance can be obtained at the FAA wildlife mitigation website (http://www.faa.gov/airports/airport_safety/wildlife/guidance/) and in the *Wildlife Hazard Management at Airports* document available at that website. In addition, much work and training has been completed to ensure that our certification inspector cadre understands wildlife issues and are capable of properly evaluating wildlife programs during airport inspections.

2.10. *Runway Safety Area Improvements:* The FAA has continued to make progress in improving Runway Safety Areas (RSAs). RSAs enhance safety in the event an aircraft undershoot or excursion from a runway. A program initiated in fiscal year 2000 accelerated RSA improvements for commercial service runways. Through this program the FAA has improved 91% of applicable RSAs to the extent practicable. The FAA remains committed to full RSA compliance and expects to complete all practicable improvements at airports by 2015. Runway safety areas are addressed in the Part 139 certification regulation and are an essential part of an airports annual FAA certification inspection.

2.11. *Engineered Materials Arresting System (EMAS):* FAA analysis shows that a standard EMAS installation can provide the equivalent protection of a standard 1,000 foot RSA. The development and use of EMAS to arrest aircraft has been a huge success in the United States. To date, EMAS has been deployed at 63 runway ends at 42 airports throughout the United States. It has successfully stopped 8 overrun aircraft. The latest successful aircraft overrun arrest in the United States occurred in Key West, Florida, November 2011, when a Cessna Citation was successfully arrested. As evidence of its continued commitment to the value of this system the FAA has conducted research to find alternatives to the existing standard that could introduce competition and potentially reduce system costs. This research is detailed in Airport Cooperative Research Program (ACRP) report 29 (available at <http://trb.org>) and in the latest FAA Advisory Circular, AC150/5220-22A, *Engineered Materials Arresting Systems for Aircraft Overruns*. Maintenance standards and criteria have been developed for airports, and we have developed and provided EMAS inspection criteria for our ACSIs to use during certification inspections.

2.12. *Aircraft Rescue Fire-Fighting (ARFF)*: The FAA is also fully committed to continually improving the aircraft rescue fire-fighting program. We have ARFF subject matter experts who work to conduct research and development studies, who develop technical standards and who provide support to field inspectors. They also keep the FAA ARFF website updated with the most current industry information, technical standards, first responder information, updates on research and development projects, and guidance on recent regulatory changes.

2.13. Our ARFF outreach includes publication of a revised ARFF DVD training program. This DVD update was distributed to airports, to industry groups, and to international partners. We have also done a great deal of work to expand industry knowledge of the use of High-Reach Extendable Turrets (HRET) and on recommended ARFF personnel training programs. Advisory Circulars on both of these topics have been recently updated. In addition, we have completed an extensive revision of our guidance related to water rescue plans at airports and have provided the field with new information about explosive devices (such as airbags and ballistic parachute systems) on aircraft and how those devices impact first responders.

2.14. In the last few years we have noticed an increased number of airports that have not met the requirement for annual ARFF training. The FAA and airports can't just focus on implementing expensive new technology, but must continue to emphasize the requirement for maintaining a capable and fully trained ARFF workforce. This is a serious problem that we are working to correct through outreach, training and a 'back to basics approach to maintain airport safety' for our certification inspectors.

2.15. Finally, our ARFF efforts have included involvement in extensive research and development efforts, particularly regarding cargo operations and ARFF response to new large aircraft (NLA). To further that research we have recently acquired a retired A310 aircraft that was used to conduct live fire testing to evaluate responding to interior cargo fires. Current ARFF program information can be obtained from: http://faa.gov/airports/airport_safety/aircraft_rescue_fire_fighting

2.16. *Safety Management Systems*: Much work has been accomplished in the development and deployment of Safety Management Systems (SMS) at airports in the United States. To provide initial SMS guidance to airports, the FAA published Advisory Circular AC150/5200-37, *Introduction to Safety Management Systems at Airports*. Following the publication of AC150/5200-37 SMS pilot studies were undertaken to identify the feasibility and requirements of SMS, to determine implementation processes, and to help airports develop SMS manuals and documentation. The FAA also has started a rulemaking project to amend our airport certification regulation (Part 139) to add the requirement for certain airports to implement SMS. We issued a Notice of Proposed Rulemaking and received hundreds of comments. We are reviewing the comments and are making changes to the SMS rule. That rule will need to be reissued for an additional comment period. We plan to have a final SMS rule in place in 2014.

2.17. Finally, in order to introduce SMS principles, including the provision of Safety Risk Management (SRM), the FAA has conducted several studies which resulted in promulgation of an internal order that requires the provision of SRM during planning and construction projects at our 29 major airport hubs. The FAA is fully committed to implementing airport SMS and feels it is an integral part of airport certification. All FAA Airports Division employees, including our certification inspector cadre, receive SMS training. Current FAA airports SMS information, to include data from the various pilot studies completed to date is available at http://faa.gov/airport_safety/safety_management_systems

3. CONCLUSION

3.1. There are many safety challenges faced by airports throughout the world. The standards and requirements associated with airport certification assist airports and civil aviation authorities in addressing those safety challenges. This paper offers a glimpse at the FAAs commitment to airport certification and on recent certification program and technical standard developments.

4. ACTION BY THE MEETING

4.1 This group is invited to note the contents and conclusions of this paper and consider adoption or implementation of the technologies and/or processes discussed to address airport certification program challenges.

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