



Australian Government
Civil Aviation Safety Authority

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SUMMARY OF PROPOSED CHANGE

**Proposed amendments to
Subpart 139H MOS – Aerodrome
Rescue and Fire Fighting
Services**

Project number: AS 07/14

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1 Introduction

Subpart 139.H of the *Civil Aviation Safety Regulations 1998* (CASR) and the Part 139H Manual of Standards (MOS) set out the standards for provision of aerodrome rescue and fire fighting services (ARFFS) and have been in place since 2004.

Currently, CASA is conducting a wholistic review of the Aerodrome Rescue and Fire Fighting Services (ARFFS) standards as part of the development of a new Part 176 of the *Civil Aviation Safety Regulations 1998* (CASR) under PP 2101AS. However, some amendments are required to the Subpart 139H MOS to allow for the removal of overly prescriptive requirements, advancements in technology, and the introduction of International Civil Aviation Organization (ICAO) requirements.

Several changes included in this summary of proposed change (SPC) were previously consulted on in 2023 via PP 2101AS. Similarly, the proposed changes in this SPC are seeking alignment with ICAO requirements and/or are less prescriptive. Some of these proposed changes are the subject of existing exemptions from the ARFFS rule set or will qualify as a new exemption.

Exemptions require the ARFF service provider to demonstrate an acceptable level of safety prior to them being issued and are subject to renewal every 3 years. This creates an unnecessary exemptions workload on the ARFF service provider and on CASA for matters which should ordinarily transition into the MOS.

The changes being proposed are:

- amending the colour of fire vehicles to be predominantly a single conspicuous colour, rather than signal red
- adding Performance Level C foam as an extinguishing agent
- allowing 100% of water to be replaced by a complementary agent for category 1 and 2 aerodromes
- allowing reserve supplies of foam concentrate and expellant gas cylinders to be 100% instead of 200%
- allowing use of technology-based solutions, such as runway view cameras, to assist in the observation of all aircraft approaches and departures
- allowing remote termination of fire alarms subject to monitoring by an approved Automatic Fire Alarm Service Provider (AFASP)
- allowing the housing of inshore rescue boats to be more performance-based.

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Acknowledgement of Country

The Civil Aviation Safety Authority (CASA) respectfully acknowledges the Traditional Custodians of the lands on which our offices are located and their continuing connection to land, water and community, and pays respect to Elders past, present and emerging.

Artwork: James Baban.

2 Reference material

2.1 Acronyms

The acronyms and abbreviations used in this SPC are listed in the table below.

Table 1: Acronyms

Acronym	Description
AC	advisory circular
AFASP	automatic fire alarm service provider
ARFF	Aerodrome Rescue and Fire Fighting
ARFFS	Aerodrome Rescue and Fire Fighting Service
CAR	<i>Civil Aviation Regulations 1988</i>
CASA	Civil Aviation Safety Authority
CASR	<i>Civil Aviation Safety Regulations 1998</i>
DCP	dry chemical powder
FSCC	fire station communication centre
MOS	Manual of Standards
VSS	visual surveillance system

2.2 Definitions

Terms that have specific meaning within this SPC are defined in the table below. Where definitions from the civil aviation legislation have been reproduced for ease of reference, these are identified by 'grey shading'. Should there be a discrepancy between a definition given in this SPC and the civil aviation legislation, the definition in the legislation prevails.

Table 2: Definitions

Term	Definition
Aerodrome Rescue and Fire Fighting Service (ARFFS)	An organisation that provides aerodrome rescue and fire fighting services established under the CASA criteria.

2.3 References

Legislation

Legislation is available on the Federal Register of Legislation website <https://www.legislation.gov.au/>

Table 3: Legislation references

Document	Title
Subpart 139H Manual of Standards	Standards Applicable to the Provision of Aerodrome Rescue and Fire Fighting Services

International Civil Aviation Organization documents

International Civil Aviation Organization (ICAO) documents are available for purchase from <http://store1.icao.int/>

Many ICAO documents are also available for reading, but not purchase or downloading, from the ICAO eLibrary (<https://elibrary.icao.int/home>).

Table 4: ICAO references

Document	Title
ICAO Annex 14 Volume I	Aerodrome Design and Operations
ICAO Airport Services Manual (Doc 9137) Part 1	Rescue and Firefighting Fourth Edition, 2015

3 Purpose and scope of the proposed amendments

This section outlines the change proposals in the MOS. The intention of these amendments is to bring closer alignment with ICAO Annex 14 Volume I Aerodrome Design and Operations (Annex 14), remove prescriptive requirements, and transition standing exemptions into the MOS.

Comments from the first public consultation that took place from 13 July to 9 August 2023 have been considered.

3.1 Key change proposals

3.1.1 Fire vehicle colour

Change proposal 1

- Amend subparagraph 4.1.1.7 to allow fire fighting vehicles to be predominantly a single conspicuous colour.
- Subparagraph 4.1.1.7 of the MOS requires that fire vehicles must be 'signal red' in accordance with Australian Standard 2700 colour R13. This is very prescriptive and not completely consistent with ICAO.

Since 2007, Airservices Australia (AA), as the primary ARFFS provider in Australia, have been using fire vehicles that are 'yellowish green' under an exemption from CASA. Annex 14 recommends 'a single conspicuous colour, preferably red or yellowish green'. However, to allow for airport fire vehicle colours that are available today, it is proposed to allow for a single, predominant conspicuous colour which would also allow for contrasting stripes.

3.1.2 Fire extinguishing agent performance criteria

Change proposal 2

- Amend the Table in subparagraph 7.1.1.1 of the MOS to include a column for Performance Level C foam.

The current Extinguishing Agents table in paragraph 7.1.1 of the MOS does not include Performance Level C foam as is available under Annex 14 Table 9-2. Performance Level C foam has been available under Annex 14 since 2013. The Table in subparagraph 7.1.1.1 of the MOS determines the required minimum amount of water and discharge rate of produced foam as well as the mandatory amount of complementary agent.

Change proposal 3

- Amend subparagraph 7.1.1.6 to add that, for the purpose of substitution, 1kg of foam-compatible DCP, equals 1 litre of water for production of foam meeting performance level A.
- Delete subparagraph 7.1.2.1 in toto.

Subparagraph 7.1.2.1 of the MOS allows for category 3 to 10 aerodromes to replace water with a complementary agent; and additionally, for substitution of water for foam meeting performance level B; however, this is not provided for in Annex 14. We need to remain consistent with Annex 14 and allow the replacement of water by a complementary agent for aerodrome categories 1 and 2 for foam substitution meeting performance level A.

3.1.3 Reserve stock of fire fighting agent

Change proposal 4

- Amend subparagraph 7.1.3.1 of the MOS to require a reserve supply of complementary agent and expellant gas cylinders equivalent to only 100% of the quantities of those agents, excluding category 1 and 2 aerodromes that have replaced up to 100% of water with complementary agent.

Subparagraph 7.1.3.1 of the MOS requires a reserve supply of foam concentrate, complementary agent and expellant gas cylinders equivalent to 200% of the quantities of those agents to be provided in the rescue and fire fighting vehicles for the aerodrome category. This is double the Annex 14 requirement for complementary agent and is excessive.

AA have been maintaining a 100% reserve supply of complementary agent and expellant gas cylinders under an exemption from CASA.

3.1.4 FSCC vision and alarm vision requirements

Change proposal 5

- Add another subparagraph to 22.1.2 of the MOS to allow a visual surveillance system (VSS) to provide a view of runways and 'short final' approaches onsite, or remotely, subject to the following conditions:
 - 'clear vision' can be provided through indirect observation using a visual surveillance system (VSS)
 - the VSS must provide clear vision of the runway(s) and 'short final' approaches
 - appropriate RFF response times must be met
 - any VSS must be approved by CASA prior to establishment and use.

Subparagraph 22.1.2.1 of the MOS requires an RFF control cabin to have clear vision of the runway and 'short final' approaches. This implies there is a 'physical' control cabin but does not expressly require 'line-of-sight' to the runway and 'short finals'.

The ICAO Airport Services Manual Part 1 – RFF allows:

The installation of closed-circuit television (CCTV) cameras may be considered in watchrooms to enhance their view.

Amending this requirement, to allow the use of visual surveillance systems (VSS) to enhance, or even substitute for, "clear vision" is consistent with the recent amendments to the Part 172 MOS introducing VSS. In order to ensure that an appropriate system is installed CASA approval is required prior to installation and use of a VSS.

Change proposal 6

- Amend subparagraph 22.1.2.3 of the MOS to allow aerodrome fire alarms to terminate remotely subject to the following conditions:
 - subject to a written agreement between the aerodrome operator and the ARFFS provider
 - the alarm is constantly monitored, or monitored at least for the same hours, as the ARFFS is provided
 - monitoring must be carried out by an automatic fire alarm service provider (AFASP), approved by an agency of a state or territory government
 - an activated alarm is immediately notified by the AFASP:
 - » during the hours of ARFFS operation — to a responsible individual employed by the ARFFS provider

or

- » outside the hours of ARFFS operation — to the nearest state or territory emergency service
- the ARFFS category response times must be met.

Subparagraph 22.1.2.3 of the MOS requires aerodrome fire alarms to terminate at aerodrome ARFFS Fire Station Communication Centre (FSCC). Amending this requirement, to enable alternate fire alarm monitoring and alarm termination arrangements to be made by an aerodrome owner/operator, provides flexibility for aerodromes to streamline infrastructure and communications requirements and to take advantage of advances in alarm technologies.

AA have been able to use remote monitoring of aerodrome fire alarms under an exemption from CASA.

3.1.5 Inshore rescue boats

Change proposal 7

- Amend subparagraph 22.1.7.1 of the MOS to allow inshore rescue boats to be housed in accordance with:
 - the boat manufacturer’s operating and maintenance recommendations
 - local environmental conditions
 - the boat’s actual location
 - the applicable, or anticipated, rescue requirements
 - applicable national, state, territory and local government regulatory requirements.

Subparagraph 22.1.7.1 of the MOS requires inshore rescue boats to be housed under cover. Amending this prescriptive requirement, which is not directly linked to operational performance of the rescue boats, would enable the ARFFS provider to determine the housing of difficult terrain vessels with consideration given to manufacturer operating and maintenance recommendations, local environmental conditions, national/local regulatory requirements, vessel location and response requirements.

AA are not required to house inshore rescue boats under cover under an exemption from CASA.

4 Previous consultations

CASA is reviewing the ARFFS standards in the development of a new standalone Part 176 of CASR to replace Subpart 139.H of CASR. On 13 July 2023, CASA published the ['Proposed changes to aerodrome rescue and firefighting services legislation \(creation of new Part 176 of CASR\) - \(PP 2101AS\)'](#) for consultation.

The recommendations from the department and Senate reviews, along with additional opportunities to modernise the ARFFS ruleset with an increased focus on performance-based approaches, had been considered in the development of the policy proposals.

The consultation proposed 24 specific policy changes; however, due to the complexity involved with some of the broader policy issues, such as the scope of ARFFS in relation to the Airservices regulations the Part 176 project has not yet progressed further. The Part 176 Technical Working Group (TWG) established under the Aviation Safety Advisory Panel (ASAP) agreed for the consultation to go ahead on PP 2101AS.

Of the 7 change proposals in this SPC, 5 were previously consulted under PP 2101AS. Percentages of support for the consultation was as follows:

- fire vehicle colour: 97%
- reserve supplies of complementary agent and expellant gas cylinders: 90%
- visual surveillance technology: 82%
- remote fire alarm termination: 82%
- housing of inshore rescue boats: 66%

It is evident there has already been significant support for these change proposals. In relation to the housing of inshore rescue boats, Annex 14 does not mandate conditions for housing of boats used for water rescues in difficult environments. Manufacturers' instructions should specify how rescue boats are to be stored when not in use and they should be able to be deployed in an emergency from the most suitable location.

5 Impact on industry

CASA considers these amendments will have a positive effect on provision of ARFFS.

Four of the proposed changes are the subject of current exemptions and are in operation.

Two proposed changes are Annex 14 requirements which provide another option for use of performance category foam as an extinguishing agent and clarify the requirements for foam substitution and aerodrome category.

The introduction of runway visual surveillance technology for FSCCs does not impact industry.

5.1 Safety risk analysis

Five of the proposed changes are subject to a risk assessment by ICAO prior to being introduced as a standard or a recommended practice in Annex 14, or to support those provisions:

- Change proposal 1 - fire vehicle colour
- Change proposal 2 - performance Level C foam
- Change proposal 3 - fire extinguisher agent performance criteria
- Change proposal 4 - reserve stock of fire fighting agent
- Change proposal 5 - closed-circuit television (CCTV) cameras.

The other 2 proposed changes are the subject of current exemptions where the ARFFS provider has been required to provide a safety argument to CASA under Part 11 of CASR, demonstrating that an acceptable level of safety will be provided. Those proposed changes are in relation to:

- Change proposal 6 - remote fire alarm termination
- Change proposal 7 - housing of inshore rescue boats.

5.2 Impact analysis

The proposed amendments will be submitted to the Office of Impact Analysis (OIA) for assessment; however CASA expects that the proposed amendments will have machinery impacts and that no further analysis in the form of an Impact Analysis (IA) will be required.

6 Submitting your view and what next

CASA will consider all comments received as part of this consultation process and incorporate changes as appropriate. Comments on this consultation should be submitted through the online response (CASA Consultation Hub) form by close of business 17 April 2025.