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Life. Property. Environment.

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Committee Secretary
Senate Standing Committees on Rural and Regional Affairs and Transport
PO Box 6100
Parliament House
Canberra ACT 2600

RE: Inquiry into the provision of rescue, firefighting and emergency response at Australian airports

Thank you for the opportunity to make a submission to the inquiry.

FPA Australia is a not-for-profit organisation with members in all Australian jurisdictions. Central to our vision is a focus on advocacy in order to influence change and deliver improved fire industry outcomes for the community. Our advocacy role includes promoting improvements in legislation, codes and standards which necessitates engagement with all states and territories and the federal government. Such advocacy is also complemented by development of our own guidance material; submissions to government inquiries and proposed legislative reforms; education and training services; and, the development of national accreditation schemes for individuals undertaking roles in the fire protection industry.

As the national peak industry body representing the fire industry we have numerous members who develop work with firefighting foams on a regular basis and consider that access to this extensive experience allows us to provide opinion in relation to the terms of reference items (a), (c), (d), (e), (f), (h) and (i) to assist the committee with making informed decisions.

Our response for consideration by the committee is as follows:

(a) the current standards applicable to the provision of aerodrome rescue and firefighting services relating to community safety and the emergency personnel safety;

FPA Australia advocates for the protection of life, property and the environment from fire and related emergencies.

The importance of being able to reliably extinguish a fire during an incident, especially when innocent aircraft passengers of indeterminate age need to be evacuated in the vicinity of a fire, cannot be overstated.

Ensuring good aerodrome rescue and firefighting outcomes relating to community safety and emergency personnel safety is often strongly linked to firefighting foam performance.

FPA Australia supports the use of fluorine free firefighting foams in applications where they provide adequate levels of firefighting performance but contends that end users should not be forced to use them in high risk applications, such as aerodrome rescue, or where the firefighting foam must be able to provide firefighting performance that they have not been independently demonstrated to achieve. FPA Australia contend that in such high risk applications, the use of C6 fluorotelomer foams,

manufactured in compliance with the US EPA PFOA stewardship program, may still be required to provide effective fire protection, whilst minimising environmental impacts.

Fluorine free firefighting foams continue to evolve, but are typically lacking important properties that C6 fluorotelomer firefighting foams provide; these properties include fuel shedding and enhanced vapour suppression. When fuel vapour is not suppressed effectively by a foam blanket on the fuel, fire can flash back and present significant issues to both those escaping from an incident and firefighters. This problem can be countered by regularly adding to a foam blanket on the fuel, but this means more firefighting foam needs to be applied increasing the potential for error and hindering escape.

We therefore respectfully request that the 'Senate Standing Committees on Rural and Regional Affairs and Transport' considers the importance of good firefighting performance as significant to ensuring the protection of the community and emergency personnel safety. Allowing the continued responsible use of C6 fluorotelomer foams in high risk firefighting applications is essential.

Washington State (USA) legislation aimed at restricting PFAS-containing firefighting foams

Washington State (USA), introduced legislation aimed at restricting PFAS-containing firefighting foams after having conducted public hearings to investigate the issues. Mitch Hubert, who works for a leading supplier of fluorine free foams, testified at a public hearing on the 15 February 2018 regarding the proposed restrictions on fluorinated foams (PFAS-containing foams), 'I would strongly recommend that the people here take a look at the best practices, we're actively telling people do not train with fluorinated foams, use non-fluorinated foams where ever you can, but maintain the short chain chemistry, AFFF's and AR-AFFF's that need to be used for critical situations like aircraft rescue firefighting and large catastrophic fuel-in depth type fires'. A video of all the testimonies provided to the Washington State public hearings on the 15 February 2018 is accessible by following **this link**, https://www.tvw.org/watch/?eventID=2018021146. Mitch Hubert's testimony begins at 16 minutes, 25 seconds.

(c) the comparison of safe systems of emergency response standards and systems of work for firefighting and rescue operations for structure fires, aircraft rescue, emergency medical response and other emergency incidents;

FPA Australia encourage the 'Senate Standing Committees on Rural and Regional Affairs and Transport' to consider our response to item (a) above with respect to systems of work for firefighting and rescue operations for aircraft rescue.

(d) the consideration of best practice, including relevant international standards;

FPA Australia recommend caution before deciding to restrict the use of C6 fluorotelomer firefighting foams for airport and hanger applications. Although fluorine free firefighting foams have been adopted in some Australian states and overseas for aviation risks, due to a lack of definitive information we are not confident that they will operate effectively in some of the scenarios that may be encountered by the aviation industry within Australia.

The failure of a firefighting foam to work effectively in an incident should be avoided by following a fire test method that considers the extremes of the Australian climate, with the most volatile type of fuel that may be encountered, while being applied with the amount of air introduced into the firefighting foam solution (expansion ratio) being reflective of the capabilities of devices available to deal with the incident.

International Civil Aviation Organization (*ICAO) Fire Testing Protocols*

ICAO sets the requirements for firefighting foam fire tests that are widely accepted by the aviation industry.

- ***Temperature***

  It should be noted that the ICAO fire testing protocols allow fire testing to be completed with ambient air and foam solution temperatures as low as 15^0C.

  These temperatures are much lower than typically experienced in Australia, especially during summer. Foams which pass the ICAO tests at these minimum temperatures may not perform adequately at the higher temperatures typically experienced in Australia.

- ***Test fuel***

  ICAO requirements for firefighting foam fire tests allow the use of aviation fuels such as Jet A fuel and Kerosene. We understand that Jet A1 fuel is widely used by the civil aviation industry and presents a greater hazard than Jet A fuel or Kerosene.

- ***Expansion Ratio***

  The amount of air introduced into a firefighting foam solution, providing the expansion ratio, when applied on a fire can directly influence effective performance. The ICAO requirements for firefighting foam tests detail the 'Uni 86' foam nozzle as an appropriate branch pipe for use in the test.

  The Uni 86 foam nozzle provides a level of expansion that is favourable compared with many foam nozzles that would be used in an incident at an aerodrome.

FPA Australia Position

Given the issues with the ICAO test protocol identified above, FPA Australia contend that any firefighting foam being considered for use in civil Australian airports be as a minimum, subjected to the International Civil Aviation Organization (ICAO) Level B fire test method with the following additional requirements incorporated before being approved for use in Australia:

a. The fire test method is conducted at much higher minimum temperatures, reflective of the higher temperatures encountered in Australian conditions. We suggest a temperature of 40^oC should be required for both ambient air and foam solution during the test,
b. The fire test method is conducted with Jet A1 fuel, and
c. The fire test method is conducted with foam nozzles that provide an expansion ratio that is typical of that available during an incident at Australian Airports.

Def Aust 5706:2009, and US MIL-F Spec 24385F (SH):1994 with subsequent amendments

We are not aware of any fluorine free foams that currently meet rigorous military firefighting foam test standards like Def Aust 5706:2009 and US MIL-F Spec 24385F (SH):1994 with subsequent amendments.

Training and testing with firefighting foams (Best Practice)

The use of C6 fluorotelomer foams in training or system testing should be avoided and eliminated where possible by applying alternate training and testing regimes using fluorine free firefighting foams.

FPA Australia, contends that the widespread historical contamination resulting from foams containing PFOS and PFOA is the result of poor past practice in training and testing of systems in which these foams were used frequently with no present fire hazard. Historical contamination is not considered to be the result of use in responding to actual fire incidents.

Consequently, most of this historical contamination could have been prevented by merely changing practices related to training and system testing, while retaining firefighting foam with appropriate performance for response to actual incidents.

Perfluorohexanoic acid (PFHxA) Research (C6 fluorotelomer firefighting foams)

Perfluorohexanoic acid (PFHxA) is a primary impurity, degradant and metabolite associated with C6 fluorotelomer firefighting foams. To facilitate informed decision making, FPA Australia recommend the 'Senate Standing Committees on Rural and Regional Affairs and Transport' review the highlights and abstracts in the research information provided below.

Please refer to an article published by, Regulatory Toxicology and Pharmacology, which provides the findings of research into 'Development of a chronic human health toxicity value for use in risk assessment', accessible by following this link,
https://www.sciencedirect.com/science/article/pii/S0273230019300194?via%3Dihub

Please refer to an article published by, Regulatory Toxicology and Pharmacology, which provides the findings of research into 'Application of human health toxicity value for risk characterization', accessible by following this link,
https://www.sciencedirect.com/science/article/pii/S0273230019300200?via%3Dihub

(e) the mechanisms and criteria for the review of the provisions of safety standards for the provision of rescue and firefighting services, if any;

Achieving good environmental outcomes associated with the use and selection of firefighting foams is strongly linked to firefighting performance. Consideration of environmental impacts should focus on whole fire incidents not just firefighting foam in isolation.

We therefore respectfully request that the 'Senate Standing Committees on Rural and Regional Affairs and Transport' considers the importance of good firefighting performance as significant to ensuring the protection of the environment, critical infrastructure and the community.

Allowing the continued responsible use of C6 fluorotelomer foams in high risk firefighting applications is essential. However the use of these C6 fluorotelomer foams in training or system testing should be avoided and eliminated where possible by applying alternate training and testing regimes using fluorine free firefighting foams.

FPA Australia also encourage the 'Senate Standing Committees on Rural and Regional Affairs and Transport' to consider our response to item (d) above with respect to mechanisms and criteria for the review of the provisions of safety standards for the provision of rescue and firefighting services.

(f) a review of Airservices Australia policy and administration of aviation rescue and firefighting services;

Testing and training with firefighting foam has been a key source of environmental contamination in the past that can be eliminated in most instances with alternative techniques. As discussed above most historical contamination is not as a result of actual firefighting incidents. Most historical contamination is the result of poor practice during testing and training. Therefore the environmental contamination of soil and water with firefighting foam can be dramatically reduced with the use of firefighting foam system and equipment testing and training techniques that eliminate the use of foam altogether or capture the discharge of any foam for disposal in accordance with local regulatory requirements. Such techniques will prevent recurrence of the large scale historical contamination which we have seen in the past.

Replacing firefighting foam that has the required high level of firefighting performance for use in actual fire incidents will therefore not significantly reduce existing or future PFAS contamination.

(h) the impact on Australia's national and international reputation and aviation safety record as a result of any lowering of aviation rescue and firefighting services; and

FPA Australia encourage the **'**Senate Standing Committees on Rural and Regional Affairs and Transport' not to deteriorate Australia's national and international reputation and aviation safety record**,** by focusing solely on environmental issues rather than community safety and emergency personnel safety in conjunction with environmental issues.

(i) any other related matters.

IPEN Paper – Fluorine-free Firefighting Foams (3F) Viable Alternative to Fluorinated Aqueous Film-forming Foams (AFFF)

The Persistent Organic Pollutants Review Committee (POPRC-14) was held in Rome, Italy from the 17 to 21 September 2018.

The committee was presented with a document titled 'Fluorine-free Firefighting Foams (3F) Viable Alternative to Fluorinated Aqueous Film-forming Foams (AFFF)' (IPEN Paper) by the Independent Expert Panel Convened by IPEN dated September 2018.

FPA Australia encourage the **'**Senate Standing Committees on Rural and Regional Affairs and Transport' to disregard the IPEN Paper which contains information that is disputed by both fluorinated and fluorine free foam manufacturers together with informed members of the fire industry.

The FFFC is a trade association that includes member companies that provide a majority of firefighting foam used worldwide.

Please refer to the letter provided with this submission addressed to the POPs Review Committee from the Fire Fighting Foam Coalition (FFFC), which states, 'The IPEN paper contains numerous inaccuracies, omissions and misleading statements. The foam manufacturers listed below, all of whom sell both fluorinated and fluorine-free foams (FFF), do not agree with many of the conclusions contained in the IPEN paper on the efficacy and environmental impact of firefighting foams. They specifically reject the conclusion that current-day FFF can provide an equivalent level of performance to AFFF agents for all class B applications and hazards, and thus the use of AFFF agents is no longer necessary and can be phased out'.

The term 'AFFF' in the statement refers to 'Aqueous Film Forming Foam' which is a fluorinated type of firefighting foam.

The term 'class B' in the statement refers to 'A fire in flammable liquids, combustible liquids, petroleum greases, tars, oils, oil-based paints, solvents, lacquers, alcohols, and flammable gases'. Jet A1 is defined as a flammable liquid by an Australian Standard (AS 1940-2004).

Future of firefighting foam seminar

FPA Australia provided a seminar in Brisbane, Sydney, Melbourne and Perth in 2018, titled, the future of firefighting foams. A small selection of slides with content that is relevant to our submission are attached.

Information Bulletin (IB 06) Selection and use of firefighting foams

FPA Australia have published an information bulletin that provides detailed information pertinent to the selection and use of firefighting foams. A copy of this information bulletin is attached and accessible publicly online by following this link,
http://www.fpaa.com.au/technical/technical-documents/information-bulletins/ib-06-v11-selection-and-use-of-firefighting-foams.aspx

General

Forcing the use of fluorine free firefighting foams in applications where their firefighting performance is inferior to a C6 fluorotelomer-based foam alternative, will likely result in slower acting, less effective, less reliable fire protection, with increased risks to safety and potentially detrimental environmental outcomes.

Accordingly we urge the 'Senate Standing Committees on Rural and Regional Affairs and Transport' to consider:

a) Banning firefighting foams which contain Perfluorooctane Sulfonate (PFOS),

b) Encouraging the use of fluorine free firefighting foams in applications where they are independently verified to provide adequate levels of firefighting performance, considering anticipated high operating temperatures, types of fuels that may be encountered and the expansion ratio available from application devices onsite,

c) Permitting the use of US EPA PFOA Stewardship Program compliant, C6 fluorotelomer firefighting foams in major hazard applications where liquid fuel in-depth risks exist to provide protection to the community, firefighters, critical infrastructure, and the environment,

d) Permitting the use of US EPA PFOA Stewardship Program compliant, C6 fluorotelomer firefighting foams in aerodrome rescue applications where high levels of firefighting performance are required to provide protection to the community and firefighters, and

e) Encouraging the best practice in any firefighting foam system testing and training techniques regarding restricting containment and disposal, and the use of fluorine free firefighting foams for training regardless of the foam appropriate for the hazard.

Thank you for the opportunity to provide this submission. Please do not hesitate to contact me by email on or by phone on should you wish to discuss this further.

Yours sincerely,

Brendan Scully
Senior Technical Officer
FPA Australia