

Fluorinated Fire Fighting Foams

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Sponsor: Dangerous Goods

Authorised by: Director, Fire Safety

1. PURPOSE

This document details the position of Fire Rescue Victoria (FRV) in regards to the selection, storage, deployment and disposal of fluorinated fire fighting foams. The policy has been established as a precautionary measure to protect FRV personnel and the environment from exposures to persistent and potentially harmful chemicals.

The intent is to provide clear and concise information to inform applications for written advice regarding fire protection systems and emergency plans at dangerous goods sites and major hazard facilities.

2. SCOPE

This guideline applies to all dangerous goods sites and major hazard facilities within the FRV district that have obligations under the Dangerous Goods (Storage and Handling) Regulations 2012 and the Occupational Health and Safety Regulations 2017.

3. FRV POLICY

- FRV does not use fire fighting foams containing fluorine.
- FRV has phased out the use of persistent per-and polyfluoroalkyl substances (PFAS) containing fire fighting foams across its operations. PFAS chemicals include perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA) and perfluorohexane sulfonate (PFHxS).
- FRV does not provide design advice.
- FRV expect dangerous goods sites and major hazard facilities to demonstrate that they intend to install or have installed, test and maintain suitable and appropriate fire-fighting systems which meet clearly defined standards in regard to functionality, availability, reliability and safety performance.
- FRV expect dangerous goods sites and major hazard facilities to demonstrate that they have chosen a fire-fighting agent that provides the best combination of performance, reliability and personnel safety and that the agent would be deployed in a manner that limits potential acute and chronic health impacts.
- FRV expect dangerous goods sites and major hazard facilities to demonstrate compliance with the general environmental obligations detailed in the *PFAS National Environmental Management Plan*¹.

¹ http://www.epa.vic.gov.au/PFAS_NMP

4. INSTALLED SYSTEMS AND EMERGENCY PLANS

- 4.1** FRV expect that fire systems shall be designed ('sized') for a clearly identified emergency scenario. The emergency scenario(s) shall have been identified in a risk assessment, fire safety study or similar. Where the design emergency scenario is not the 'worst case scenario', a rationale should be provided to justify the decision.
- 4.2** FRV expect that operators of dangerous goods sites and major hazard facilities shall assure themselves that the system is designed and functioning to at least the minimum requirements defined in relevant engineering standards in regards to application rate, duration, containment and treatment/disposal etc., as evidence of ongoing functionality (i.e. independent testing) should be available when FRV visit the premises or site.
- 4.3** Effective emergency planning requires that the expectations of FRV are clearly understood and agreed on by all stakeholders in the course of preparedness activities. This will allow FRV to tailor their response and bring the most effective resources to the site in the shortest possible timeframe.

If the design or operational intent of a system is that FRV will connect and/or operate the system, then the proposal must be endorsed by the FRV (i.e. prior to making the request under emergency conditions).

FRV is a metropolitan fire and rescue service and is resourced and equipped accordingly. FRV appliances each carry 300L of general purpose (Class A/Class B hydrocarbon or polar solvent) fire fighting foam. Additional resources are available to FRV, however it is important to identify the likely requirements in the course of emergency management planning (i.e. prior to an emergency occurring).

- 4.4** The selection of the most suitable fire fighting foam(s) at dangerous goods sites and major hazard facilities should involve consideration of the following factors:
- any potential acute or chronic health impacts
 - environmental sensitivity/disposal requirements
 - Class A (combustible materials) or Class B (flammable liquid) service
 - foam type: protein (P), fluoroprotein foam (FP), film-forming fluoroprotein (FFFP), synthetic aqueous film forming foams (AFFF);
 - alcohol-resistance (AR)
 - extinction times
 - application rates
 - inventory requirements
 - blanketing and vapour suppression
 - use at low, medium and high expansion
 - availability of training foams
 - flow and drainage characteristics
 - saltwater compatibility
 - compatibility with other foams
 - storage stability².

² Foam concentrate quality tests must be performed every twelve months. Copies of test reports must be kept by the owner and made available for review. The foam concentrate manufacturer must be consulted by the owner when the test results deviate more than 10% from those recorded in acceptance testing, to ensure the quality of the foam concentrate.

The experience of FRV has been that independent testing provides the most robust evidence of the suitability of foam for a specific application.

- 4.5** FRV acknowledges that there is no current legislative restriction on dangerous goods sites or major hazard facilities using fluorinated foam. Should exceptional circumstances arise in an emergency event at a dangerous goods or major hazard facility site, where the FRV is also required to use fluorinated foam, FRV sets out the following expectations in order to exercise its duty of care to both personnel and the environment:
- the dangerous goods site or major hazard facility will supply enough foam and fire fighting equipment to manage the risk at the facility. This determination shall include a reasonable determination of losses on deployment (e.g. due to adverse weather conditions)
 - a suitable and appropriate number of site personnel will be adequately trained in the use of on-site foam and fire fighting equipment and associated controls to limit risks³ to personnel and the environment
 - fluorinated foam containers and site-owned fire fighting equipment shall be clearly identified
 - the site will establish a management plan to address appropriate containment of all foam and fire-water run-off in the event of an emergency on site
 - the foam and fire-water management plan will be readily available to the FRV Incident Controller attending an emergency
 - during and in the aftermath of an emergency event, site representative/s will consult with the relevant regulatory agencies regarding containment of fluorinated foam
 - FRV accepts no liability for any contamination caused as a result of the use of fluorinated foam at dangerous goods sites
 - in circumstances where additional foam may need to be purchased by FRV during an incident at a dangerous goods site, the operator will reimburse FRV for any costs associated with the purchase and delivery of foam
 - in exceptional circumstances where FRV is required to use fluorinated foam in FRV appliances or fire fighting equipment for a fire event, if any damage (including contamination) is caused to FRV appliances or fire fighting equipment as a result of using fluorinated foam, the operator of the facility will reimburse FRV the full cost associated with repairing this damage, decontaminating the fire fighting equipment or appliances, or replacing the equipment or appliances (if the damage cannot be repaired or decontaminated to FRV standards)
 - FRV consider themselves indemnified for any loss or damage it may suffer as a result of, or in connection with, using fluorinated foam at an operator's dangerous goods sites (including without limitation any consequential remediation or legal costs).

Note: *this is a controlled document and may only be modified by authorised personnel after review by FRV Fire Safety Advisory Group.*

³ FRV advise that this risk assessment be extended to consider financial and / or legal risks but acknowledge that this is beyond their scope.