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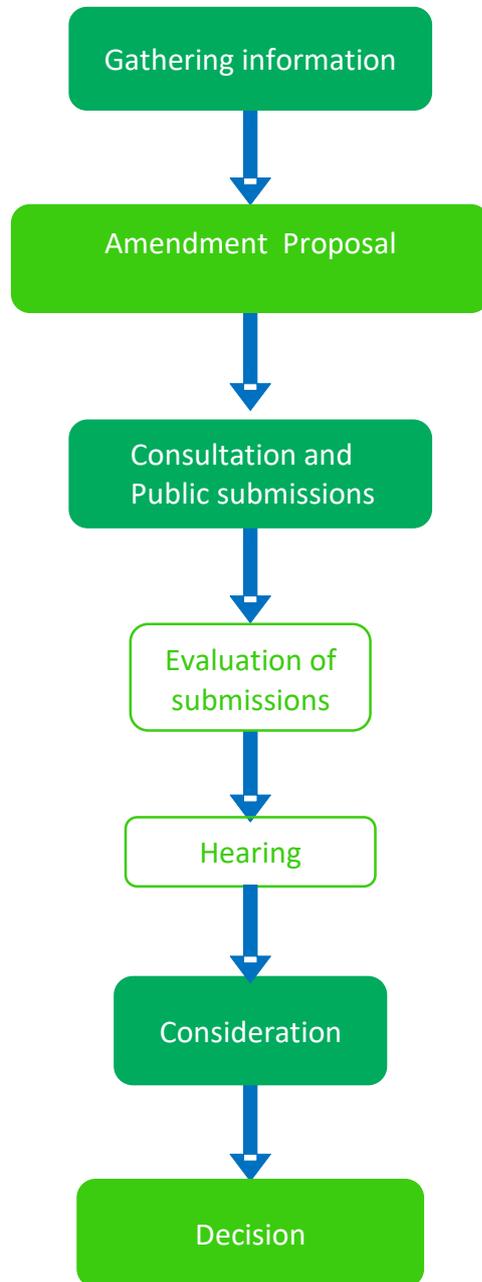
New Zealand Government

# Staff report: Amendment of the Fire Fighting Chemicals Group Standard (APP203289)

## Contents

	The Amendment Process .....	3
<b>1.</b>	<b>Introduction</b> .....	<b>4</b>
<b>2.</b>	<b>Summary of updates to proposals</b> .....	<b>4</b>
<b>3.</b>	<b>Background</b> .....	<b>7</b>
	PFAS and its regulatory history .....	7
	Consultation .....	7
<b>4.</b>	<b>New information and international regulation of PFAS</b> .....	<b>10</b>
	New Zealand .....	10
	Australia .....	10
	European Union .....	13
	United States of America.....	16
<b>5.</b>	<b>Submissions analysis</b> .....	<b>18</b>
	Submissions received .....	18
	Key themes raised in submissions .....	20
<b>6.</b>	<b>Consideration of new information and submissions and updates to proposals</b> <b>23</b>	
	Updates to proposals .....	23
	Matters to be considered by the EPA under section 96C of the HSNO Act.....	24
<b>7.</b>	<b>Conclusions and recommendations</b> .....	<b>26</b>
<b>8.</b>	<b>Appendix 1. Fire Fighting Chemicals Group Standard Amendment 2020</b>	<b>30</b>
<b>9.</b>	<b>Appendix 2: Detailed response to submissions</b> .....	<b>46</b>
<b>10.</b>	<b>Appendix 3: EU POPs Regulation of PFOA</b> .....	<b>66</b>

## The Amendment Process



## 1. Introduction

- 1.1 This document is the Environmental Protection Authority (EPA) Staff Update Report on the proposal to amend the Fire Fighting Chemicals Group Standard 2017, which was publicly consulted on from 30 September 2019 until 16 December 2019.
- 1.2 The purpose of this report is to present an analysis of the submissions received, provide responses to the issues raised in submissions, to present new information relevant to the proposals, and to provide an update to the amendments proposed in the consultation document.
- 1.3 It should be noted that the analysis and proposals contained in this Update Report are those of the EPA staff. In its decision-making capacity, the Decision-making Committee (DMC) may choose to accept, reject or modify the recommendations presented herein.

## 2. Summary of updates to proposals

- 2.1 A summary of the updates the EPA staff has made to the proposals made in the consultation document is presented in the table below. A more detailed analysis of submitter comments/concerns and our response is provided in Appendix 2.
- 2.2 A draft copy of the group standard with the revised proposed amendments is provided as Appendix 1. Schedule 2 of that contains definitions of terms also used in this Update Report.

**Table 1. Summary of EPA updates to proposals in the consultation document.**

Proposal	EPA update to proposal
<p><b>Proposal 1</b> Prohibit the use of firefighting foam products that contain perfluoroalkyl and polyfluoroalkyl substances (PFAS) compounds for training purposes from the date the revised Group Standard is enacted.</p>	<p>This proposal is maintained. This will apply to all PFAS containing products, both legacy (C8) PFAS firefighting foam, and modern C6 fluorotelomer firefighting foam.</p>
<p><b>Proposal 2</b> Prohibit the use of firefighting foam products that contain PFAS compounds for testing unless all releases of foam can be fully contained on site.</p>	<p>This proposal is maintained. This will apply to all PFAS containing products, both legacy (C8) PFAS firefighting foam, and modern C6 fluorotelomer firefighting foam.</p>
<p><b>Proposal 3</b> Allow the use of firefighting foam products that contain PFAS compounds that are already installed in systems and where the use cannot be fully contained (i.e. fire trucks) for a period of two years.</p>	<p>This proposal is maintained with respect of legacy (C8) PFAS firefighting foam (i.e. two years), in accordance with the provisions of the Stockholm Convention listing of perfluorooctanoic acid (PFOA) and PFOA-related compounds, and allow a period of five years in respect of modern C6 fluorotelomer firefighting foam.</p>
<p><b>Proposal 4</b> Allow the firefighting foam products that contain PFAS compounds to be used where they are already installed in fixed systems and where their use can be fully contained on site and cannot be released into the environment for a period of five years.</p>	<p>This proposal is maintained with respect of legacy (C8) PFAS firefighting foam (i.e. five years), in accordance with the provisions of the Stockholm Convention listing of PFOA and PFOA-related compounds. Allow a period of five years with respect of modern C6 fluorotelomer firefighting foam, with provision for an extension of this on a case-by-case basis, subject to a permission granted</p>

	<p>under section 95A of the Hazardous Substances and New Organisms (HSNO) Act. Any C6 fluorotelomer foam imported after the commencement of the amendments must not contain greater than 0.025 mg/kg of PFOA (or any of its salts), or not greater than 1 mg/kg of any individual PFOA-related compound or combination of PFOA-related compounds.</p>
<p><b>Proposal 5</b> Require thorough cleaning of all firefighting systems so as to remove, as far as reasonably practicable, any residual PFAS compounds when transitioning to a non-fluorinated firefighting foam product.</p>	<p>This proposal is maintained for all PFAS containing firefighting foam. Guidance will be provided by the EPA on expected maximum levels of residual PFAS and appropriate analytical methods for determining this (see para 7.20).</p>
<p><b>Proposal 6</b> Require that all firefighting foam products containing PFAS compounds and all PFAS containing wastes (e.g. firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS compounds) be safely disposed of by an approved method.</p>	<p>This proposal is maintained for all PFAS containing firefighting foam. The group standard will contain direction on the approved disposal methods and this will be supported by guidance material. Threshold concentrations for disposal options will be included in the group standard (see para 7.25).</p>
<p><b>Proposal 7</b> Suppliers of any firefighting foam product must ensure that the producer's certification of its fluorine content (or absence of) is clearly displayed on a label or document provided with the product.</p>	<p>This proposal is maintained, where the 'fluorine content' can be determined by a total organic fluorine analysis (fluorinated organic compounds other than PFAS are not known to be used in firefighting foams) (see para 7.29).</p>
<p><b>Proposal 8</b> All foam wastes, including fluorine-free foam, must be contained where possible (there are exceptions for essential uses and emergency incidents provided that all reasonable and practicable measures are taken to minimise environmental harm).</p>	<p>This proposal is maintained.</p>
<p><b>Proposal 9</b> Require all importers and/or manufacturers to notify the EPA of the composition of any firefighting foam product upon their first import/manufacture.</p>	<p>This proposal is maintained, and will be extended to require notification of subsequent changes to the composition of firefighting foam products.</p>
<p><b>Proposal 10</b> Remove the specific exclusion for perfluorooctanesulfonic acid (PFOS) and PFOA from the scope of the group standard since this is no longer necessary because they are (or will be) listed as persistent organic pollutants (POPs) under schedule 2A of the HSNO Act. However, firefighting foam products containing PFOA-related compounds will remain within</p>	<p>This proposal is maintained.</p>

the scope of the group standard for the duration of the transitional period specified	
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## 3. Background

### PFAS and its regulatory history

- 3.1 Following the discovery by the New Zealand Defence Force of soil and water contamination from PFAS containing firefighting foam at the Ohakea and Woodbourne airbases in late 2017, the EPA began a national investigation into whether certain firefighting foams were present at airports and other locations in New Zealand. The investigation identified some non-compliant firefighting foam containing PFOS at some airports and other sites around the country.
- 3.2 In view of this, the EPA initiated a review of the *Fire Fighting Chemicals Group Standard 2017* (group standard) to ensure that the firefighting chemicals used in New Zealand meet the requirements of the HSNO Act and that the group standard was adequately managing the risks to public health and the environment posed by these chemicals.
- 3.3 PFOS is a member of a large group of chemical compounds known as perfluoroalkyl and polyfluoroalkyl substances (PFAS). These compounds have been used since the 1940s in a wide variety of applications, including firefighting foams. Other PFAS are PFOA and PFHxS (perfluorohexanesulfonic acid).
- 3.4 From the 1960s to the 1990s, PFOS was the key ingredient in “film-forming” foams, intended to extinguish Class B fires, and was manufactured by 3M. Class B foams are used at airports, bulk fuel terminals and refineries, and military installations. These PFOS products also contained PFOA and PFHxS as minor constituents.
- 3.5 PFOS is classified as a persistent organic pollutant (POP) under the Stockholm Convention and is regulated as such, under the HSNO Act. In May 2019, the Conference of the Parties (COP) of the Stockholm Convention decided that PFOA and its related compounds should also be listed as persistent organic pollutants, with the listing coming into effect on 3 December 2020. The COP also decided on a time-limited exemption for PFOA and related compounds in firefighting foams that will allow for a staged phase-out of these products.
- 3.6 The COP recommended that all Parties to the Convention use alternatives to PFOA and its related compounds where alternatives are available, feasible and efficient. When considering alternatives, the COP advised Parties to be aware that fluorine-based firefighting foams could have negative environmental, human health and socioeconomic impacts.
- 3.7 The Ministry for the Environment is currently in the process of amending schedule 2A of the HSNO Act to add PFOA and PFOA-related compounds as POPs. This listing will include provision for the exemption for firefighting foams containing C8-PFAS as discussed in the proposals to amend the Fire Fighting Chemicals Group Standard.

### Consultation

- 3.8 A consultation document was released for public consultation on 30 September 2019. The deadline for making submissions was originally Monday 2 December 2019, but this was extended to Monday 16 December 2019 to allow more time for key stakeholders to make submissions.
- 3.9 The consultation document was made available on the EPA website<sup>1</sup> and sent to relevant stakeholders and other interested parties as required by section 53(1A) of the HSNO Act.

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<sup>1</sup> <https://www.epa.govt.nz/assets/Uploads/Documents-/Documents/Hazardous-Substances/Fire-Fighting-Chemicals-Group-Standard-consultation/Proposal-to-amend-the-Fire-Fighting-Chemicals-Group-Standard-2017.pdf>

3.10 New Zealand is party to the Technical Barriers to Trade agreement, overseen by the World Trade Organisation (WTO). This consultation was accordingly notified to WTO. No member states submitted a return on the consultation document.

3.11 The consultation document sought feedback on the following proposals to amend the Group Standard:

- Prohibit the use of firefighting foam products that contain PFAS compounds for training purposes from the date the revised Group Standard is enacted.
- Prohibit the use of firefighting foam products that contain PFAS compounds for testing unless all releases of foam can be fully contained on site.
- Allow the use of firefighting foam products that contain PFAS compounds that are already installed in systems and where the use cannot be fully contained (i.e. fire trucks) for a period of two years.
- Allow the firefighting foam products that contain PFAS compounds to be used where they are already installed in fixed systems and where their use can be fully contained on site and cannot be released into the environment for a period of five years.
- Require thorough cleaning of all firefighting systems so as to remove, as far as reasonably practicable, any residual PFAS compounds when transitioning to a non-fluorinated firefighting foam product.
- Require that all firefighting foam products containing PFAS compounds and all PFAS containing wastes (e.g. firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS compounds) be safely disposed of by an approved method.
- Suppliers of any firefighting foam product must ensure that the producer's certification of its fluorine content (or absence of) is clearly displayed on a label or document provided with the product.
- All foam wastes, including fluorine-free foam, must be contained where possible (there are exceptions for essential uses and emergency incidents provided that all reasonable and practicable measures are taken to minimise environmental harm).
- Require all importers and/or manufacturers to notify the EPA of the composition of any firefighting foam product upon their first import/manufacture.
- Two types of PFAS, PFOS and PFOA were excluded from the scope of the original (2006) Group Standard. This specific exclusion is no longer necessary because they are listed as POPs under schedule 2A of the HSNO Act (or have been shown to have met the criteria to be listed as a POP). However, firefighting foam products containing PFOA-related compounds will remain within the scope of the group standard for the duration of the transitional period specified.

3.12 In accordance with section 53(1A)(c) of the Act, the consultation document contained the EPA's assessment of the matters required under section 96C(1)(a), (b), (c), (d) and (e) in relation to the proposed amendments to the group standard, namely that:

- amending the group standard is a more efficient and effective way of managing the risks of all the hazardous substances in the identified group that the approval process in Part 5 (of the Act); and
- all the hazardous substances in the identified group have a similar nature, are of a similar type, or have similar circumstances of use, such that the risks of the group of hazardous substances can be effectively managed by one set of conditions.

3.13 In addition, in line with section 96C(1)(f) of the Act, the consultation document contained information on and a consideration of best international practices and standards for the safe management of firefighting foams.

## 4. New information and international regulation of PFAS

- 4.1 Since the release of the consultation document in September 2019, there have been a number of developments, both nationally and internationally, that are relevant to the management and regulation of PFAS containing firefighting foams.

### New Zealand

#### Addition of PFOA and PFOA-related substances as POPs to the HSNO Act

- 4.2 Separately to the process to amend the Fire Fighting Chemicals Group Standard 2017, an exercise has been underway to amend the HSNO Act to give effect to the Stockholm Convention listing of PFOA and PFOA-related compounds as POPs. This amendment, which is expected to come into effect on 3 December 2020, will address all uses of PFOA and PFOA-related compounds.
- 4.3 The EPA consulted on proposals to add PFOA and PFOA-related compounds to Schedule 2A of the HSNO Act from 28 February to 30 March 2020. These included the proposal that New Zealand register for the specific exemption allowed under the Stockholm Convention for fire-fighting foam, 'for liquid fuel vapour suppression and liquid fuel fires (Class B fires) in installed systems, including both mobile and fixed systems'. The terms of this exemption match the proposals presented for amending the Fire Fighting Chemicals Group Standard 2017, and it applies for 5 years, with a requirement for uncontained uses of PFOA-based firefighting foams to cease by the end of 2022. The consultation document is available on the EPA's website<sup>2</sup>.
- 4.4 The EPA reported to the Minister for the Environment on the outcome of the consultation in April 2020, and progress on the amendments to the Act is now under consideration by the Government.

#### Updating HSNO classification system to the GHS

- 4.5 The EPA is currently working on updating the hazardous substances classification framework under the HSNO Act to reflect the United Nations Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Part of this project involves amending all of the HSNO group standards, including the Fire Fighting Chemicals Group Standard 2017, to convert their current HSNO classifications, listed in the Scope section of the group standards, to GHS classifications. The changes to the Fire Fighting Chemicals Group Standard 2017 which will be effected by this amendment process are shown in a tracked change document available on the EPA's website<sup>3</sup>.
- 4.6 The GHS amendment application process is running separately but parallel to the amendment process which is the subject of this Update report, but it is intended that the resultant outputs of the two will be combined in the new Fire Fighting Chemicals Group Standard.

### Australia

#### Fire Protection Association Australia

- 4.7 Fire Protection Association Australia (FPAA) updated their Information Bulletin on Selection and Use of Firefighting Foams on 28 May 2020<sup>4</sup>.
- 4.8 The purpose of this Bulletin is to increase awareness of the issues surrounding the selection and use of firefighting foams based on their firefighting performance, environmental impact, and system and

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<sup>2</sup> <https://www.epa.govt.nz/public-consultations/in-progress/feedback-sought-on-new-stockholm-convention-pops/>

<sup>3</sup> [https://www.epa.govt.nz/assets/RecordsAPI/2020\\_Fire\\_Fighting\\_Chemicals\\_GS\\_TRACK\\_CHANGES.pdf](https://www.epa.govt.nz/assets/RecordsAPI/2020_Fire_Fighting_Chemicals_GS_TRACK_CHANGES.pdf)

<sup>4</sup> [http://www.fpaa.com.au/media/286787/fpa\\_australia\\_-\\_ib\\_06\\_v3\\_selection\\_and\\_use\\_of\\_firefighting\\_foams.pdf](http://www.fpaa.com.au/media/286787/fpa_australia_-_ib_06_v3_selection_and_use_of_firefighting_foams.pdf)

equipment compatibility. The new version (Version 3) includes, among other updates, new insights on both fluorinated and fluorine free foams, and updates on remediation technologies and recommendations for cleaning or change out of existing legacy foams.

- 4.9 While the FPAA Bulletin generally supports the retention of C6-PFAS firefighting foams where these are considered essential for firefighting performance, fire life safety and critical asset protection, the overall recommendations in section 10 and the recommendations for environmental best practice in section 9 of the Bulletin are very consistent with the EPA's revised proposals in Table 1 of this report.

### Australian Government Position Statement

4.10 The Australian Government published a 'National PFAS Position Statement' on 5 May 2020 which articulates the shared view of Australian state and national governments that PFAS use in Australia should be reduced where practicable, to limit further PFAS releases into the environment and reduce indirect human exposure to these chemicals. The Position Statement does not impose regulatory measures or specific timeframes. Instead it outlines a nationally agreed government stance on PFAS, and a series of objectives for phasing-out the use of PFAS of concern and for minimising their release into Australia's environment. It is designed to encourage discussion between government, industry and other stakeholders to identify options for achieving these objectives. The Australian Government has commenced consultation with stakeholders on actions they can take to help achieve this.<sup>5</sup>

4.11 The Position Statement contains the following objectives:

- Ongoing sale or use of products (i.e. chemical based formulations) and articles (i.e. objects that contain chemicals) that contain long-chain PFAS, for any industrial or commercial application, should be phased out, in line with the Stockholm Convention.
- Transitioning away from the use of chemicals that cause irreversible or long-term contamination of Australia's environment should be the ultimate goal for all users of PFAS in Australia.
  - Where short-chain PFAS are used in aqueous film forming foam (AFFF), they should only be used in emergency situations and in accordance with all relevant regulations. Any releases should be fully contained and wastes managed in accordance with the PFAS National Environmental Management Plan (NEMP).
  - Until effective and economically feasible non-PFAS alternatives are developed, the ongoing sale and use of products and articles containing short-chain PFAS may be necessary for uses for which no suitable and less hazardous alternatives are available.
  - Replacement chemicals should be degradable in the natural environment and not be bio-accumulative.

### PFAS National Environmental Management Plan

4.12 The PFAS National Environmental Management Plan (NEMP), which was produced by the Heads of EPAs Australia and New Zealand (HEPA), provides agreed guidance on managing PFAS contamination in the environment, including preventing the spread of contamination. Version 2.0 was finalised in January 2020 and published in May 2020.<sup>6</sup>

4.13 While the PFAS NEMP deals primarily with historical contamination by PFAS, rather than ongoing use of PFAS-containing substances, it does contain sections on storage and containment, disposal to landfill, and disposal to wastewater treatment systems which are of relevance to the management of

<sup>5</sup> <https://www.coag.gov.au/sites/default/files/agreements/appd-national-pfas-position-statement.pdf>

<sup>6</sup> <https://www.environment.gov.au/protection/publications/pfas-nemp-2>

PFAS-containing firefighting foams and associated wastes under the Fire Fighting Chemicals Group Standard.

### South Australia

- 4.14 In January 2018, South Australia effectively banned all PFAS-containing firefighting foams (both short-chain C6 and longer-chain C8-foams), with a two-year transition period to 30 January 2020<sup>7</sup>. EPA South Australia was able to consider exemption applications for those facilities for which a justification could be provided why fluorine free foams could not be used at the site within the required timeframe, and which could demonstrate the mitigation measures to be taken in the interim.
- 4.15 Information received from EPA South Australia (July 2020) is that effectively all of the industry in South Australia using firefighting foams had been able to transition to fluorine free foam products within the two-year transition period except for some bulk fuel storage facilities and a very small number of other facilities. In total, eight exemptions were issued and these all apply for a three-year period, subject to various conditions.
- 4.16 The main reason the operators of the bulk fuel storage facilities requested exemptions was that they were not yet satisfied that fluorine free products met the requirements for fighting a large fuel-tank fire, and more testing of these products was needed before they could have confidence that a transition is feasible.
- 4.17 The South Australian regulatory requirements include that firefighting systems be 'thoroughly cleaned so as to remove, as far as reasonably practicable, any residual' PFAS product when transitioning to a fluorine free foam. In regard to this, EPA South Australia has advised that they have not set standard residual concentration limits or produced a general guidance document, but rather they are working with each facility on a case by case basis and requiring the facilities to produce a reasonable and practical approach to cleaning out their systems.

### Queensland

- 4.18 The Environmental Management of Firefighting Foam - Operational Policy was introduced by the Queensland Government in July 2016<sup>8</sup>. This policy required the immediate removal of any PFOS legacy foams, and required the phase-out of other long-chain (C8) foams within a three-year transitional period until July 2019. Foams containing short-chain PFAS ( $\leq$ C6) can continue to be used, but only where it has been demonstrated that fluorine free foams are not acceptable, and then subject to a number of restrictions and conditions, such as complete containment of all foam solution, firewater runoff and other wastes. Where users have demonstrated that they are unable to achieve compliance with the policy within the three-year transitional period, for practical reasons, they have been able to seek dispensation through approval of a 'Transitional Environmental Program' (TEP).
- 4.19 Information received from the Queensland Department of Environment and Science (July 2020) is that TEPs have been issued for a number of operators, following individual risk assessments, and there has been no need to consider blanket exemptions for particular industries or a general extension of the transitional period. TEPs have only been issued for PFAS use in fully contained systems. The TEPs can have a maximum duration of 5 years, and can have regular progress reporting requirements (e.g. 6 monthly).
- 4.20 In relation to acceptable residual PFAS levels when transitioning from a C8-foam, the 2016 Queensland policy allowed for a maximum level of 50 mg/kg for total PFAS  $\geq$ C7 (with a separate limit

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<sup>7</sup> [https://www.epa.sa.gov.au/files/14237\\_info\\_fluorine\\_free\\_pfas.pdf](https://www.epa.sa.gov.au/files/14237_info_fluorine_free_pfas.pdf)

<sup>8</sup> <https://www.qld.gov.au/environment/pollution/management/disasters/investigation-pfas/firefighting-foam>

for for the sum of PFOS + PFHxS of 10 mg/kg). However, in systems where there are components that are difficult to clean out (e.g. pipework), there has not been a requirement to replace these components but rather an allowance has been made for the estimated residual PFAS in these components to be apportioned across the total replacement volume of foam concentrate.

- 4.21 Very few sites in Queensland have apparently transitioned from C8 to C6-foams rather than moving to fluorine free products, due to the more stringent containment requirements for PFAS foams and the likelihood of further future restrictions on the C6-PFAS foams. Information provided was also that all the ports and fuel wharves with foam deluge systems which discharge directly to waterways have transitioned to fluorine free foams.
- 4.22 Unlike South Australia, Queensland has not required that certification of the fluorine content of a firefighting foam is displayed on a label or document provided with the product. Rather, the onus is placed on the foam user to ensure they are in compliance with the regulatory policy.

## European Union

### EU POPs Regulation

- 4.23 In April 2020, Regulation (EU) 2019/1021 of the European Parliament and of the Council on persistent organic pollutants (POPs Regulation) was amended to include the listing of PFOA, its salts and PFOA-related compounds.<sup>9</sup> This amendment came into effect in the European Union on 4 July 2020, and gave effect to the listing of PFOA, its salts and PFOA-related compounds under the Stockholm Convention, including the provisions of the exemption for firefighting foams.
- 4.24 The amendment to the EU POPs Regulation replaces the previous restrictions on PFOA, its salts and related compounds under the EU REACH Regulation of 2017, including how it affected firefighting foams. In particular, whereas the REACH regulation provisions, which were scheduled to come into effect on 4 July 2020, largely did not apply to firefighting foam products which had been placed on the market before that date, the POPs Regulation will require these to be removed from service over the course of the (5 year) exemption period allowed under the Stockholm Convention listing decision.
- 4.25 In brief, the EU POPs Regulation amendments in respect of firefighting foam products containing PFOA, its salts, or PFOA-related substances require that:
- From 4 July 2020, any PFAS containing firefighting foams placed on the market must not contain greater than 0.025 mg/kg (25 parts per billion, ppb) of PFOA and its salts, or a total of 1 mg/kg (1000 ppb) of PFOA-related compounds;
  - Firefighting foams already installed in systems (both mobile and fixed) can continue to be used until 4 July 2025, subject to the following conditions:
    - Shall not be used for training (from 4 July 2020);
    - Shall not be used for testing (from 4 July 2020) unless all releases are contained;
    - From 1 January 2023, shall only be used on sites where all releases are contained.
- 4.26 The consequences of the EU POPs Regulation on firefighting foams containing PFOA, its salts, or PFOA-related substances have been summarised in a schematic diagram, produced by the German Industrial Fire Protection Association, which is attached as Appendix 3. With the exception of the dates for the entry into force and the end of the exemption period, this diagram reasonably summarises the consequences for the older C8-PFAS-containing firefighting foams following the

<sup>9</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=OJ:L:2020:188I:FULL>

addition of PFOA, its salts and related compounds as POPs into Schedule 2A of the HSNO Act (see paras 4.2-4.4).

### ECHA proposed restriction on PFHxA, its salts and related substances

- 4.27 In December 2019, the European Chemicals Agency (ECHA) published a proposal for a restriction under the EU REACH Regulation for Undecafluorohexanoic acid (also known as perfluorohexanoic acid or PFHxA), its salts and related substances, on the basis of a dossier submitted by Germany<sup>10</sup>. The proposal is to restrict the placing on the market of these substances and would affect all uses, one of which is in the C6-PFAS firefighting foams. Public consultation commenced on the proposal in March 2020 and concluded on 25 September 2020. It could be expected that a decision on the proposal is made in early 2021.
- 4.28 The Dossier Submitter concluded that the use of PFHxA, its salts and related substances, cause a risk to the environment and human health and that the emissions need to be minimised. PFHxA salts and related substances convert/degrade into PFHxA and would hence also need to be restricted. The Dossier Submitter proposed that PFHxA has a combination of hazardous properties: very high persistence which leads to an increasing pollution stock in the environment if the releases are not controlled; mobility and surface active properties such that the use of the substance causes contamination of ground water, surface waters and the marine environment on a wide geographical scale. Furthermore, its removal, e.g., from contaminated drinking water and soil is currently not economically feasible.
- 4.29 As presented, the proposal would restrict the manufacture, use or placing on the market of PFHxA, its salts, and related compounds, either as substances themselves, or as constituents of other substances or manufactured articles, from a date 18 months after the entry into force of the restriction. Similar to the POPs listing of PFOA and related compounds discussed above, the restriction would apply where the concentration of PFHxA and its salts is equal to or above 0.025 mg/kg (25 ppb), or the total concentration of PFHxA-related compounds was equal to or above 1 mg/kg (1000 ppb, equal to 1 part per million, ppm).
- 4.30 Also similar to the POPs listing for PFOA and related substances, time limited exemptions are proposed for firefighting foams:
- For five years for use, but excluding uses for training, and for testing unless all releases are contained;
  - For 12 years in respect of class B fires in large storage tanks with a surface area above 500 m<sup>2</sup>;
  - For specified defence applications, as long as no successful transition to military operable fluorine free foams can be achieved (subject to review and reporting requirements).
- 4.31 Some industry submitters (including some who have submitted on the EPA's proposals) have expressed concerns with the eventual, complete phase-out. These concerns are principally based on the uncertainty of whether fluorine free foams are available which are proven, and suitable replacements for all scenarios. As the proposals in this EU restriction dossier are similar to those proposed in the EPA's consultation document, these submitter concerns have been taken into account in this Update Report.

### EU consideration of restriction options for all PFAS

- 4.32 In May 2020, the national authorities of Germany, the Netherlands, Norway, Sweden and Denmark agreed to prepare a REACH restriction proposal with the aim to restrict the manufacture, the placing

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<sup>10</sup> <https://echa.europa.eu/documents/10162/ace43ef4-7dc1-ecf8-7974-526f1dcd2f9e>

on the market and the use of all per- and polyfluoroalkyl substances (PFAS) in the EU<sup>11</sup>. The main rationale of this initiative was the very high persistence of these chemicals in the environment and the potential contamination of ground, surface and drinking water. These EU Member States launched a questionnaire, which was open until 31 July 2020, to generate further information for the development of the REACH restriction dossier. The information gathered on the properties and use of PFAS and possible alternatives will be used for the scope and evaluation of the most appropriate restriction measures, as well as the option(s), to be considered within the dossier.

- 4.33 This action followed the presentation, in December 2019, by a number of EU member state environment Ministers of a document to the European Commission that laid out a strategy to phase out most uses of PFAS compounds by 2030. That document called for Europe to eliminate all uses of PFAS that are not “essential” and to approach the chemicals as a group rather than individually. The report, titled “Elements for an EU-strategy for PFASs,” mapped out a comprehensive approach to the chemicals that have contaminated water around the world. A group approach was also suggested to avoid “regrettable substitution,” referring to the introduction of similarly dangerous replacements for toxic compounds, a problem that has repeatedly occurred with PFAS.

#### ECHA/European Commission studies on the use of PFAS and Fluorine-free alternatives in fire-fighting foams

- 4.34 In June 2020, the final report was published for two studies, commissioned by the European Chemicals Agency (ECHA) and the European Commission, on the use of PFAS and fluorine-free alternatives in firefighting foams, including an assessment of the alternatives and the socio-economic impacts of substitution.<sup>12</sup>
- 4.35 The overall aim of the report was to collect information to support the assessment of potential regulatory management options to address the human health and environmental risks associated with the use of PFAS in firefighting foams in the EU. One of the key results of the report was that alternatives are generally available and technically feasible and have been successfully implemented by many users in most of the main user sectors identified. However, use areas where PFAS-free alternatives have not been fully tested, are in the petrochemical sector and large fuel storage tank facilities. It was considered that more testing is required to prove performance of alternatives under some conditions.
- 4.36 In considering transition periods for any restriction, the report concluded that training and testing should be the highest priority for a quick transition to fluorine-free foams. Users in the chemicals/petrochemicals sectors have suggested longer transition periods of up to 10 years, or longer, may be needed for specific applications (notably large tank fires) where further testing is required to determine the technical feasibility of alternatives and potential fire-safety risks from using alternatives may be higher (and are still under investigation). For small incidents as well as all other sectors, shorter transition periods between 3-6 years have been suggested and are expected to minimise the socio-economic implications of a restriction.
- 4.37 Regarding thresholds for the remaining concentration of PFAS in equipment that previously used PFAS-based fire-fighting foams, following cleaning, the report considers that a balance would need to be struck between the amount of PFAS emissions remaining if a given threshold is adopted, versus the costs of cleaning imposed in order to achieve that threshold. Stakeholder input to the report suggested threshold levels varying between 1 ppb to 50,000 ppb for PFAS. The available information

<sup>11</sup> <https://echa.europa.eu/-/five-european-states-call-for-evidence-on-broad-pfas-restriction>

<sup>12</sup> [https://echa.europa.eu/documents/10162/28801697/pfas\\_flourine-free\\_alternatives\\_fire\\_fighting\\_en.pdf/d5b24e2a-d027-0168-cdd8-f723c675fa98](https://echa.europa.eu/documents/10162/28801697/pfas_flourine-free_alternatives_fire_fighting_en.pdf/d5b24e2a-d027-0168-cdd8-f723c675fa98)

suggests that 100 ppb can be achieved with a relatively simple cleaning process while 1 ppb is achievable with more complex and costly processes. However, setting a lower concentration threshold would lead to a relatively small additional reduction in PFAS emissions, compared to the overall reduction achieved by the restriction. This indicates the merit is not setting a fixed 'clean-up' threshold but rather to treat situations on a case-by-case basis depending on the risk settings involved.

## United States of America

### Federal activities

- 4.38 In December 2019, the United States (US) Senate approved the 2020 National Defense Authorization Act (NDAA), which included several significant provisions relating to PFAS-contamination, largely arising from firefighting foams. The NDAA prohibits the use by the US military of firefighting foam containing PFAS after October 1, 2024, with an exception for shipboard use, and immediately prohibits the uncontrolled release of fluorinated AFFF and the use of AFFF in training exercises at military installations.
- 4.39 On 7 April 2020, the US Military Performance Specification (US Mil Spec) for AFFF, MIL-PRF-24385F(SH), for fresh and sea water, was amended (Amendment 4) to remove the explicit requirement that foams must contain a fluorocarbon (PFAS) surfactant<sup>13</sup>. This revision of the US Mil Spec is approved for use by the US Naval Sea Systems Command and is available for use by all Departments and Agencies of the US Department of Defense (DoD). The specification includes maximum allowable limits for the presence of PFOS and PFOA of 800 ppb, each, and also contains a requirement that the total fluorine content be determined and reported as part of a product's qualification report.
- 4.40 Notes to the US Mil Spec state that: 'The DoD's goal is to acquire and use a non-fluorinated AFFF formulation or equivalent firefighting agent to meet the performance requirements for DoD critical firefighting needs. The DoD is funding research to this end, but a viable solution may not be found for several years. In the short term, the DoD intends to acquire and use AFFF with the lowest demonstrable concentrations of two particular [per- and] PFAS; specifically PFOS and PFOA. The DoD intends to be open and transparent with Congress, the US Environmental Protection Agency (US EPA), state regulators, and the public at large regarding DoD efforts to address these matters. AFFF manufacturers and vendors are encouraged to determine the levels of PFOS, PFOA, and other PFAS in their products and work to drive these levels toward zero while still meeting all other military specification requirements.'
- 4.41 The US Mil Spec is sometimes regarded as the 'gold standard' for firefighting foam performance specifications and has been required to be met by other agencies and authorities. For example, until recently Mil Spec foams were required to be used at major US civilian airports which come under Federal control. However, the FAA Reauthorisation Act of 2018 will eliminate this requirement within three years (by 5 October 2021). A similar exemption has been made which allows the use of fluorine free foams at Canadian airports.

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<sup>13</sup> <https://quicksearch.dla.mil/Transient/743F7347F09D4B529C9A1D6D6DC4EAA7.pdf>

## State activities

- 4.42 A number of States in the USA have passed or are considering legislation to prohibit or restrict the use of PFAS containing firefighting foams, particularly for training purposes. These include Alaska, California, Colorado, Connecticut, Illinois, Iowa, Kentucky, Maine, Maryland, Michigan, Minnesota, New Hampshire, New York, North Carolina, Vermont, Virginia, Washington State and Wisconsin.
- 4.43 Information on the legislation in Washington State, which was passed in March 2018, was included in the consultation document. This legislation contained some exemptions from the restrictions on PFAS firefighting foams for specific uses and situations where these foams could continue to be used beyond 1 July 2020. This legislation has since been amended, with effect from 11 June 2020, to eliminate these exemptions after specified periods<sup>14</sup>:
- The exemption for use at airports is to be linked to the provisions of the FAA Reauthorisation Act of 2018 mentioned above, and will expire two years after the effective date of those provisions with a possible extension for one year (it is assumed this would mean till 5 October 2023 or 5 October 2024)
  - The exemptions for use at bulk fuel terminals, oil refineries, and chemical plants cease at 1 January 2024, however operators can seek a waiver for two years, which may be extended for a further two years (till 1 January 2026 or 2028), if they provide to the regulator:
    - (i) 'Clear and convincing evidence that there is no commercially available replacement that does not contain intentionally added PFAS chemicals that is capable of suppressing a large atmospheric storage tank fire;
    - (ii) Information on the amount of firefighting foam containing intentionally added PFAS chemicals stored, used, or released on site on an annual basis;
    - (iii) A report on the progress being made by the operator of the chemical plant, terminal, or refinery to transition to use of firefighting foam at the facility that does not contain intentionally added PFAS chemicals; and
    - (iv) An explanation of how all releases of firefighting foam will be fully contained on site and how existing containment measures will not allow firewater, wastewater, runoff, and other wastes to be released to the environment including, but not limited to, soils, groundwater, waterways, and stormwater.'
- 4.44 California is currently considering legislation relating to PFAS containing firefighting foam<sup>15</sup> which will:
- Prohibit its use for training purposes from 1 January 2022
  - Prohibit its manufacture, sale or use from 1 January 2022, except:
    - (i) Where required by Federal law, until one year after that requirement is revoked (when the requirement is revoked after 1 January 2021);
    - (ii) Until 1 January 2024 at facilities which have fixed foam fire suppression systems and capability for 110% containment of any expected discharge;
    - (iii) Until 1 January 2028 at bulk petroleum storage facilities or oil refineries with large storage tanks or for use on a fuel-in-depth pool, subject to grant of a waiver to extend this for two years, with the possibility of a further extension of two years (all waivers must expire by 1 January 2032), where the following is provided to the regulator:

<sup>14</sup> <http://lawfilesexternal.wa.gov/biennium/2019-20/Pdf/Bills/Session%20Laws/House/2265-S.SL.pdf?q=20200929220959>

<sup>15</sup> [https://leginfo.ca.gov/faces/billNavClient.xhtml?bill\\_id=201920200SB1044](https://leginfo.ca.gov/faces/billNavClient.xhtml?bill_id=201920200SB1044)

- Clear and convincing evidence that there is no commercially available replacement that does not contain intentionally added PFAS chemicals and that is capable of suppressing fire for that specific use.
- Information on the amount of firefighting foam containing intentionally added PFAS chemicals stored, used, or released onsite on an annual basis.
- A detailed plan, with timelines, for the operator of the terminal or oil refinery to transition to firefighting foam that does not contain intentionally added PFAS chemicals for that specific use.
- A plan for meeting the following requirements:
  - (a) Allow no release directly to the environment, such as to unsealed ground, soakage pits, waterways, or uncontrolled drains.
  - (b) Fully contain all releases onsite.
  - (c) Implement containment measures such as bunds and ponds that are controlled, impervious to PFAS chemicals, and do not allow firewater, wastewater, runoff, and other wastes to be released to the environment, such as to soils, groundwater, waterways, or stormwater.
  - (d) Dispose of all firewater, wastewater, runoff, and other wastes in a way that prevents releases to the environment.
  - (e) If there is a release to the environment, report the identity of the foam, the quantity used, the total PFAS concentration, and the form of any waste that contains PFAS chemicals that is released into the environment to the State Fire Marshal within five business days of the release.
  - (f) Document the measures undertaken pursuant to this subparagraph and provide this documentation to the State Fire Marshal upon request.

## 5. Submissions analysis

### Submissions received

- 5.1 A total of 21 submissions were received. Overall, submitters supported the proposals to prohibit and phase out firefighting foams containing PFAS. However, the majority of submitters wanted the proposal to phase out C6-foams at the same time as C8-foams to be reconsidered or delayed, citing ongoing doubts about the effectiveness of alternative fluorine free foams.
- 5.2 Submitters were asked to state their overall position on the proposals. Of the 18 who responded to this question:
- (a) 10 supported the proposals in part

- (b) 6 opposed some of the proposals
- (c) 2 supported some of the proposals.

5.3 Submitters were asked if they would like to participate in a hearing:

- (a) Nine submitters want to speak at a hearing
- (b) Two submitters asked to reserve the opportunity to attend
- (c) Ten submitters indicated that they did not want to attend a hearing

**Table 2 – submitters on the proposed amendment**

Name	Organisation	Organisation type
Anonymous	AECOM	Business company/consultant
Richard Paul (Dick) Gillespie	Fire Engineering Solutions	Business company/consultant
Aaron Thorburn	RefiningNZ	Business company
Scott Lawson	Fire Protection Association (New Zealand) Incorporated	Industry association
David Hipkins	Tyco New Zealand Ltd T/A Wormald	Business company
Anonymous	New Zealand Fire Equipment Manufacturers Association Incorporated	Industry association
Ken Clarke	Responsible Care NZ	Industry association
Thomas Cortina	Fire Fighting Foam Coalition Inc.	Industry association
Connor Higgs	Firewatch Canterbury Ltd	Business company
Anonymous	Air New Zealand	Business company
Jodi Caughley	Engineering New Zealand	Industry association
Anonymous	Methanex NZ Ltd	Business company
Anonymous	Beach Energy Resources NZ Limited	Business company
Kevin Lehrke	Port Taranaki Limited	Business company
Mike Willson	Willson Consulting	Consultant
Kevin Ward	New Zealand Airports Association	Industry association

Name	Organisation	Organisation type
David le Marquand	4Sight Consulting Limited for Z Energy Limited, BP Oil New Zealand Limited and Mobil Oil New Zealand Limited	Business company
Rod Rutledge	Caltex Australia Petroleum Pty Ltd	Business company
Wayne Andrews-Paul	New Zealand Defence Force	Public sector organisation
Victor Lenting	Fire and Emergency New Zealand	Public sector organisation
Katherine Hill	OMV New Zealand Ltd	Business company

## Key themes raised in submissions

5.4 **Training and testing.** There was very wide support from submitters to prohibit the use of all PFAS containing firefighting foams for training purposes, and also for testing purposes unless all releases of foam can be contained and prevented from entering the environment.

5.5 **Phase-out of PFAS foams.** Most submitters did not agree that the modern C6 fluorotelomer PFAS firefighting foams should be fully phased out at the same time as the legacy C8-PFAS firefighting foams. 15 submitters raised concerns about the effectiveness and environmental impact of fluorine free foams. When considering the phase out of C6-firefighting foams, submitters were asked to select their preferred option:

- Option 1: Phase out C6 and C8-firefighting foams at the same time – this was the EPA's preferred option; and
- Option 2: Grant permissions, under section 95A of the HSNO Act, for companies to continue to use C6-firefighting foams after the phase out period is completed.

5.6 The majority of submitters supported the EPA implementing a permissions system under section 95A of the HSNO Act, for companies to continue to use C6-firefighting foams after the scheduled phase out period is completed (Option 2).

5.7 **Fluorine-free foams.** The consultation document asked submitters to outline any concerns they may have about fluorine-free foams potentially containing other ecotoxic, and persistent and/or bioaccumulative compounds. Two implementation options were offered:

- Option 1: amending the scope of the group standard by limiting the set of hazard classifications allowed under the group standard, or by including specific limits on particular ecotoxic properties in the product specification
- Option 2: EPA assessment of assignment to the group standard by requiring importers to provide the full composition of products they assign to the group standard.

5.8 A number of submitters (10) indicated they did have concerns regarding the potential environmental impact of fluorine-free foams. Comments included that these foams, while not containing persistent and/or bioaccumulative components, can still have acute ecotoxic properties that can lead to short-term environmental damage; they can be used in larger quantities as they are not as efficient at

extinguishing fires and this can lead to a higher environmental load (higher biochemical oxygen demand, BOD); and there is sometimes uncertainty around what compounds they contain.

- 5.9 Only a few submitters expressed a view on which option they preferred and these favoured option 2. Reasons for this included that it was less prescriptive and more open to development as knowledge of replacement compounds improves; it is important for environmental regulators to have a way to assess the safety of proposed alternatives; and it provides greater confidence and certainty (to importers/manufacturers and therefore users) that a product has been correctly assigned to the group standard. One submitter considered that option 1 would not provide a sufficient level of assurance, to either users or the public, as to what is in these (alternative) products, and that persistency itself as a hazardous property is not well addressed in the HSNO classification system. This submitter also considered that option 2, as presented, was insufficient and that the EPA should be required to carry out a determination that products met the scope of the group standard rather than just receive the information on the composition from the importer. They further considered that there should be ongoing compliance assurance, not just at first import, as formulations of products with the same trade/brand name can change over time.
- 5.10 **Cleaning equipment on transition.** The EPA proposed that before transitioning from a PFAS-containing foam to a fluorine-free foam, the firefighting system must be thoroughly cleaned to remove, as far as reasonably practicable, any residual PFAS compounds. It was indicated that the EPA would provide guidance on what was considered to be 'as far as reasonably practicable', and that this would take a risk-based approach. Alternatively, it was suggested that prescriptive clean-up concentration levels could be set in the group standard. Views were sought on these two options.
- 5.11 Seven submitters provided comment on this matter, and while they all generally favoured the 'as far as reasonably practicable' approach supported by guidance rather than regulated clean-up concentrations, there were a range of views provided. These included:
- The guidance on cleaning requirements should be supported by a robust risk analysis so as to ensure that residual PFAS levels are realistic and practical, and cleaning processes are efficient and avoid creation of unnecessary wastes
  - The requirement to clean systems to 'as far as is reasonably practicable' lacks definition and creates uncertainty as to the requirements; specific guidance will need to be issued to reflect the regulatory intent for different cleaning scenarios
  - The industry association Fire Fighting Foam Coalition believes that a standard of 'as far as reasonably practicable' is appropriate, and they urged the EPA to outline a set of basic procedures to be followed by users rather than set a numerical (clean-up) value that must be met
  - The oil companies are conditionally supportive of the proposal to thoroughly clean a system when transitioning foams, the important issue being what the 'as far as reasonably practicable' test is, and they support the intent to provide guidance and consider that the approach should be by way of method statement rather than reliance on residual detection thresholds
  - The notion of simply providing a 'methodology' for decontamination is unsuitable without an acceptable threshold; an endpoint is needed to address the risk that a more demanding regulatory endpoint will be developed some time in the future and the (cleaning) process is required to be repeated; if the EPA's intent is to agree end-point thresholds on a site by site basis, we would be supportive of this
  - Without a definition of 'reasonably practicable' – and such a definition must contain either specific threshold concentrations for the contaminants involved or a consistent means of deriving them – we cannot provide estimates of resources and costs involved

- Guidance should ideally encompass a preferred or recommended clean-out procedure with acceptable levels of residual PFAS in the final washwater, and once verified for a 'typical' system this procedure could then be rigorously followed and documented for other similar systems.

- 5.12 **Disposal.** It was also proposed to require that all firefighting foam products containing PFAS compounds and all PFAS containing wastes (e.g. firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS compounds) be safely disposed of by an approved method.
- 5.13 A number of submitters expressed concerns around the disposal of PFAS containing foams and associated wastes. These included the high costs of disposal, the current lack of availability of suitable disposal facilities in New Zealand (including for low level contaminated wastes) requiring the export of wastes for disposal, the volume of wastes including low concentration wastes to be disposed of, and the availability and shortage of specialist contractors to undertake the clean-out and disposal work which can mean extended periods before contractors can start on a given site. Some submitters expressed concerns over whether this could be accomplished within a two year transition period.
- 5.14 The industry association Fire Fighting Foam Coalition advised that their best practice guidance recommends that PFAS foam concentrate be disposed of by high-temperature incineration and that firewater run-off also be disposed of by high-temperature incineration or another suitable method. They were therefore generally supportive of the disposal options proposed. The FFFC did, however, express strong concerns about the cost and impact to users of having to export large quantities of foam for destruction and replace that foam and possibly equipment all within a 2 to 5-year period. They also indicated concerns about the potential environmental impact of a mandated transition if it is not carried out correctly.
- 5.15 The downstream oil companies indicated support for the disposal proposals and considered that incineration is the only option for the destruction of these compounds. They also noted that there are no incineration facilities in New Zealand thus requiring export which came with a significant cost burden.
- 5.16 It was also expressed that there is a need to define a disposal standard for firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS. This would be needed to avoid very large volumes of water containing very low concentrations of PFAS requiring costly disposal. A similar situation would apply to the acceptability of solid wastes with very low PFAS content being disposed of to landfill.

## 6. Consideration of new information and submissions and updates to proposals

### Updates to proposals

- 6.1 The EPA has assessed the information provided by submitters, recent updates to the regulation of PFAS substances and firefighting foams internationally, and other recent international information, and considered whether any changes are required to the proposals. A summary of the responses to key themes raised in the submissions and changes to regulation internationally, and any associated updates to the amendments to the group standard is provided below. A more detailed response to submissions and discussion of updates is provided in Appendix 2 of this document.
- 6.2 In response to concerns raised around the phase out of C6-based foams, the EPA highlights that there is international movement away from the use of all PFAS based foams as noted in section 4 (New information and international regulation of PFAS). It is accepted that there are not 'drop in' replacements for PFAS foams for all uses at this time, although we understand that there is increasing availability of fluorine free foams for many uses. The EPA also accepts that the cost of cleaning and replacing PFAS foams and associated infrastructure may be considerable in some cases.
- 6.3 To account for concerns raised in the submissions around the cost and time associated with transitioning from existing PFAS foam use, the EPA has proposed an extended phase out/ transition period for C6-PFAS foams, for both uncontained and contained uses, of five years, and is proposing that a permission control be applied using section 95A of the HSNO Act following the transition period to allow for continued contained use of C6-foams on a case-by-case basis. The implementation of a permission control for continued use was supported by the majority of submitters.
- 6.4 The phase out periods for the older C8 (PFOA-based) foams are unchanged from those proposed in the consultation document. This is necessary for New Zealand to be able to meet its obligations under the Stockholm Convention. It is consistent with what will be followed by other countries if they adopt the time-limited exemption for firefighting foams provided in the listing of PFOA and PFOA-related compounds under the Convention. As an example, the European Union has already commenced this phase out period as described in paras 4.23-4.26 and as shown in Appendix 3.
- 6.5 Provisions for continued use of C6-foams have been adopted by various jurisdictions with varying lengths of phase out period and types of exemption or waivers for different uses depending on the applicable legislation or standards followed. In response to information received in submissions, the phase out periods proposed for some uses under the group standard are greater than those adopted in other jurisdictions.
- 6.6 For example, only a two year phase out period for all uses of PFAS containing foams was provided in South Australia (see paras 4.14-4.17), and a three year period was allowed for uncontained uses in Queensland (see paras 4.18-4.22). The proposed five year phase out period in the group standard is consistent with the phase-out period in proposed EU legislation affecting C6-foams, and is longer than given in some State legislation in the USA, including the proposed legislation in California.
- 6.7 Exemptions or dispensations are available, upon application, and subject to specific conditions, for specific uses in Queensland and South Australia. Provisions for the granting of waivers for specific uses have also been adopted in the USA, in Washington State (see para 4.43), and are proposed for adoption in California (see para 4.44). The implementation of permissions in the group standard to allow for continued use by specific entities under specific conditions is considered to align with these exemptions and waivers in place internationally, and is intended to act in the same manner.

- 6.8 It is envisioned that the uses for which permissions would be granted will align with uses for which exemptions are granted in other jurisdictions, and for similar reasons. These uses would likely be in the areas of bulk fuel or solvent storage facilities and chemical plants where there are still concerns around the performance of currently available fluorine free foams.
- 6.9 Furthermore, the requirements for obtaining an exemption or waiver, and the conditions placed on these, in other jurisdictions align with those which will be considered for permissions. The draft amended group standard (Appendix 1) contains a number of matters which may be considered for assessment or in setting conditions of a permission. These align with the requirements noted for exemptions/waivers such as those issued by South Australia and Queensland, and in legislation in Washington State and in legislation proposed by California.
- 6.10 The EPA has noted responses from submitters regarding provisions for cleaning equipment on transition to fluorine-free foams and the practical definition for the removal of residual PFAS compounds to meet the requirements of “as far as reasonably practicable”. While submitters supported a generally flexible risk based approach, several considered it was difficult to assess this without a definition for what this may entail.
- 6.11 The EPA proposes maintaining the “as far as reasonably practicable” approach in order to allow for risk based flexibility towards the risks and costs of removing residual PFAS in different scenarios. However, the EPA also proposes that guidance will be provided by the EPA on expected maximum levels of residual PFAS and appropriate analytical methods for assessing compliance. Guidance would take a risk-based approach to setting different residual PFAS thresholds for different scenarios and would be in alignment with international best practice guidance and thresholds set in other jurisdictions. As a starting point for this guidance, some indicative threshold levels are given in para 7.20 and are discussed in Appendix 2.
- 6.12 The EPA notes that while submitters agreed with the proposed methodology for disposal of PFAS containing foams, these being methodologies accepted under the Basel Convention as outlined in the draft amended group standard, they also considered that there may be significant issues and limitations associated with cost, and availability of disposal facilities to users in New Zealand. Particular concern was given to the issue of the high costs of disposing of large volumes of material which may be contaminated with very low levels of PFAS such as firewater, wastewater and run off.
- 6.13 In response, the EPA has updated the draft group standard to include direction on approved disposal methods and threshold concentrations associated with the disposal options for different scenarios. The updated draft group standard contains provisions for the disposal of low PFAS concentration liquid waste as trade waste in accordance with trade waste bylaws and low concentration solid wastes to landfill where accepted by the landfill and subject to acceptance criteria specified in the group standard (see para 7.25 and Appendix 2).

## **Matters to be considered by the EPA under section 96C of the HSNO Act**

### **Subsections 96C(1)(a), (b), (c), (d), (e), (f) and (g)**

- 6.14 Before issuing or amending a group standard, subsections 96C(1)(a), (b) and (c) of the HSNO Act require the EPA to be satisfied that “issuing the group standard is a more efficient and effective way of managing the risks of all the hazardous substances in the identified group than the approval process in Part 5.”
- 6.15 There are also particular considerations that apply under section 96C(1)(d), when considering making a group standard in relation to a product, including a waste product.

- 6.16 Further, where a group standard applies to more than one hazardous substance, the EPA must be satisfied that all the hazardous substances in the identified group “have a similar nature, are of a similar type, or have similar circumstances of use, such that the risks of the group of hazardous substances...can be effectively managed by 1 set of conditions” (section 96C(1)(e)).
- 6.17 Section 96C(1)(f) requires the EPA to “consider the best international practices and standards for the safe management of hazardous substances and products ...”
- 6.18 Section 96C(1)(g) requires the EPA to “consider the types of EPA controls appropriate for the group in accordance with sections 77, 77A and 77B”.
- 6.19 The assessment and considerations for the proposed amendments under section 96C(1)(a), (b), (c) and (e) of the Act remain unchanged from those presented in the consultation document. It is considered that any change to the amendment proposals would not have a significant effect on whether the group standard is a more efficient and effective way of managing the risks of all hazardous substances in the identified group, nor do the updated amendment proposals result in any change to the nature, type or use pattern of the substances covered. Therefore it is considered that the proposed amendments would satisfy section 96C(1)(a), (b), (c) and (e) of the Act.
- 6.20 Following the analysis of submissions, updates have been made to the proposed amendments which affect waste products covered by this group standard, these being the proposed requirements for disposal and cleaning of PFAS contaminated material. These updates provide additional detail to the original proposals, such as the addition of thresholds for control requirements.
- 6.21 It is considered that these updates provide greater detail on the intended amendments but do not result in any significant change to the waste products which would or wouldn't be covered by the group standard. Therefore, it is considered that the considerations of these proposals outlined in the consultation document would remain applicable to the updated draft proposals. As a result, it is considered that the requirements and considerations for products including waste products under section 96C(1)(d) are satisfied by the proposed amendments.
- 6.22 In relation to section 96C(1)(f) of the Act, new information has become available since the publication of the consultation document. This new information has been outlined in section 4 of this update report.
- 6.23 The new information regarding regulation of PFAS containing firefighting foam products by other regulators internationally indicates similar regulatory practice to that which would be enacted by the proposed amendments. Therefore, it is considered that the proposed amendments are in line with best international practices and standards such that the requirements of section 96C(1)(f) would be satisfied.
- 6.24 In relation to section 96C(1)(g) of the Act, the EPA considers that the controls proposed in the amendments are appropriate to the group of substances managed by the group standard, and are in accordance with sections 77 and 77A of the Act. In particular, the proposal to include the requirement to obtain a permission under section 95A of the Act is consistent with the provisions of section 77A(2)(a). It is not proposed in the amendments that any exposure limits be set under section 77B of the Act.

## 7. Conclusions and recommendations

- 7.1 The EPA has assessed the responses made in submissions on the proposals from the consultation document and the new information which has been made available or been published internationally after the release of the consultation document. As a result the EPA has amended and updated its proposals. A detailed response to the submissions and any resulting updates or changes to the proposals is presented in Appendix 2.
- 7.2 The EPA considers that the proposed amendments to the group standard covered in proposals 1-10 will satisfy the requirements under section 96C of the Act and therefore the amendment should be approved.
- 7.3 The EPA considers that amending the group standard is a more efficient and effective way of managing the risks of all the hazardous substances in the identified group than the approval process in Part 5 (of the Act); and all the hazardous substances in the identified group have a similar nature, are of a similar type, or have similar circumstances of use, such that the risks of the group of hazardous substances can be effectively managed by one set of conditions. The EPA also considers that the proposed amendments to the group standard are consistent with the best international practices and standards for the safe management of firefighting foam products.
- 7.4 A draft copy of the group standard with the proposed amendments is provided as Appendix 1.
- 7.5 A summary of the conclusions reached and updates the EPA staff have made on the proposals in the consultation document are as follows:

### Proposal 1

- 7.6 Prohibit the use of firefighting foam products that contain PFAS compounds for training purposes from the date the revised group standard is enacted.
- 7.7 The EPA retains this proposal. This will apply to all PFAS containing products, both legacy (C8) PFAS firefighting foam, and modern C6 fluorotelomer firefighting foam products.
- 7.8 This proposal is consistent with the Stockholm Convention listing in respect of PFOA-based firefighting foams. It is also consistent with legislation in effect in Australia, Europe, and USA, and with industry best practice guidance (FFFC, FPAA).

### Proposal 2

- 7.9 Prohibit the use of firefighting foam products that contain PFAS compounds for testing unless all releases of foam can be fully contained on site.
- 7.10 The EPA recommends progressing with this proposal. This will apply to all PFAS containing products, both legacy (C8) PFAS firefighting foam, and modern C6 fluorotelomer firefighting foam products.
- 7.11 This recommendation is consistent with the Stockholm Convention listing in respect of PFOA-based firefighting foams. It is also consistent with legislation in effect in Australia, Europe, and USA, and with industry best practice guidance (FFFC, FPAA).

### Proposal 3

- 7.12 Allow the use of firefighting foam products that contain PFAS compounds that are already installed in systems and where the use cannot be fully contained (i.e. fire trucks) for a period of two years.
- 7.13 The EPA recommends progressing with this proposal with respect to legacy (C8) PFAS firefighting foam (i.e. two years), in accordance with the provisions of the Stockholm Convention listing of PFOA

and PFOA-related compounds, and allow a period of five years in respect of modern C6 fluorotelomer firefighting foam.

- 7.14 A five year phase-out period for uncontained uses of C6 fluorotelomer firefighting foams compares with two-year and three-year periods allowed under the South Australia and Queensland regulatory policies, respectively. It is consistent with the phase-out period in proposed EU legislation and longer than given in some US State legislation, including the proposed legislation in California. Industry best practice guidance recommends the containment of all PFAS foam and wastewater wherever possible.

#### Proposal 4

- 7.15 Allow the firefighting foam products that contain PFAS compounds to be used where they are already installed in fixed systems and where their use can be fully contained on site and cannot be released into the environment for a period of five years.
- 7.16 The EPA recommends progressing with this proposal with respect to legacy (C8) PFAS firefighting foam (i.e. five years), in accordance with the provisions of the Stockholm Convention listing of PFOA and PFOA-related compounds, and allow a period of five years with respect to modern C6 fluorotelomer firefighting foam, with provision for an extension of this on a case-by-case basis, subject to a permission granted under section 95A of the HSNO Act.
- 7.17 A five year phase-out period for contained uses of C6 fluorotelomer firefighting foams compares with two-year and three-year periods allowed under the South Australia and Queensland regulatory policies, respectively, although in both jurisdictions there is the ability to seek exemptions, on a case-by-case basis, to allow continued use subject to conditions. It is consistent with the phase-out period in proposed EU legislation, other than in respect of large storage tanks, which would be addressed by the permissions element of this proposal. Similar or shorter phase-out periods are given in some State legislation in the USA, including Washington State and the proposed legislation in California, but in both cases there is the provision of waivers upon application. Industry submissions recommended the adoption of the permissions provision to allow extended use of C6 fluorotelomer foams on a site specific basis.
- 7.18 C6 fluorotelomer foam will still be able to be imported/manufactured and supplied for allowed contained uses, but it will be required to meet the standard stipulated in the EU POPs Regulation 2019/1021 (previously contained in the EU REACH Regulation 2017/1000), that it must not contain greater than 0.025 mg/kg of PFOA (or any of its salts), or greater than 1 mg/kg of any individual PFOA-related compound or combination of PFOA-related compounds. This is as recommended in industry best practice guidance (FPAA, FFFC).

#### Proposal 5

- 7.19 Require thorough cleaning of all firefighting systems so as to remove, as far as reasonably practicable, any residual PFAS compounds when transitioning to a non-fluorinated firefighting foam product.
- 7.20 The EPA recommends proceeding with this proposal. Guidance will be provided by the EPA on expected maximum levels of residual PFAS and appropriate analytical methods for determining this. As a starting point, the following acceptable residual levels will be considered:
- Transition from any PFAS foam to fluorine-free foams; up to 50 mg/kg for total PFAS (measured as total organic fluorine (TOF)), plus separate limits of 5 mg/kg for the sum of PFOS + PFHxS, and 5 mg/kg for PFOA

- Transition from C8-PFAS foam to C6-PFAS foam; up to 50 mg/kg for total PFAS  $\geq$ C7 (measured by the total oxidisable precursor assay (TOPA) for C7 to C14 PFAS (TOPA C7-C14)), plus separate limits of 5 mg/kg for the sum of PFOS + PFHxS and 5 mg/kg for PFOA.

7.21 The guidance would take a risk-based approach. For example, in systems where there are components that are difficult to clean out (e.g. pipework), an allowance would be made for the estimated residual PFAS in these components to be apportioned across the total replacement volume of foam concentrate, and there would not be an expectation that these components be replaced.

## Proposal 6

7.22 Require that all firefighting foam products containing PFAS compounds and all PFAS containing wastes (e.g. firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS compounds) be safely disposed of by an approved method.

7.23 This proposal is maintained for all PFAS containing firefighting foam and associated wastes. The group standard will contain direction on the approved disposal methods and this will be supported by guidance material. Threshold concentrations for disposal options are now included in the revised group standard.

7.24 The approved methods are those accepted in the Basel Convention General Technical Guidelines on Persistent Organic Pollutant Wastes. The most common of these methods is high-temperature incineration, which is the method recommended in industry guidance (FFFC, FPAA) and by foam manufacturers. The group standard provides for, and does not preclude, these methods being undertaken in New Zealand.

7.25 The group standard allows for low PFAS concentration wastes to be disposed of to trade waste or landfill as long as this is in accordance with the applicable operators' requirements. For disposal to landfill, the following criteria are considered appropriate:

- for C8-foam wastes:
  - they meet the landfill acceptance criteria contained in the HEPA PFAS National Environmental Management Plan (see paras 4.12-4.13); and
  - the total concentration for PFOA, its salts and PFOA-related compounds does not exceed 50 mg/kg (determined as total organic fluorine (TOF)).
- for C6 fluorotelomer foam wastes:
  - they meet applicable (local) landfill acceptance criteria; and
  - the leachable concentration for PFAS does not exceed 0.05 mg/kg (determined as TOF) and the total concentration for PFAS does not exceed 50 mg/kg (determined as TOF).

## Proposal 7

7.26 Suppliers of any firefighting foam product must ensure that the producer's certification of its fluorine content (or absence of) is clearly displayed on a label or document provided with the product.

7.27 The EPA recommends proceeding with this proposal. The EPA considers that the 'fluorine content' can be determined by a total organic fluorine analysis, since fluorinated organic compounds other than PFAS are not known to be used in firefighting foams.

7.28 This requirement is in line with international best practice, mirroring a similar one contained in the South Australia legislative policy on firefighting foams. Similarly, the requirement in the US Mil Spec (MIL-PRF-24385F(SH)) is for the total fluorine content to be determined.

7.29 The limits provided above for cleaning when transitioning from a PFAS foam to fluorine-free foams may be appropriate also for product certification, namely:

- up to 50 mg/kg for total PFAS (measured as TOF), plus separate limits of 5 mg/kg for the sum of PFOS + PFHxS and 5 mg/kg for PFOA.

### Proposal 8

7.30 All foam wastes, including fluorine-free foam, must be contained where possible (there are exceptions for essential uses and emergency incidents provided that all reasonable and practicable measures are taken to minimise environmental harm).

7.31 The EPA recommends proceeding with this proposal. Use of firefighting foam in a way that it may enter the environment, and the management of any adverse effects that might arise, is within the remit of the HSNO Act and therefore the group standard. To achieve the purpose of the HSNO Act, the entire lifecycle of a hazardous substance is assessed, including in relation to the intended uses of the substance throughout its life cycle.

### Proposal 9

7.32 Require all importers and/or manufacturers to notify the EPA of the composition of any firefighting foam product upon their first import/manufacture.

7.33 The EPA recommends proceeding with this proposal, but to also include a provision that further notifications must be provided if the formulation of the product changes. This will enable the EPA to assess whether products contain any components of concern and which are not covered by the scope of the group standard. It would also enable the EPA to build up a record of the compositions of all firefighting foam products in New Zealand, and would provide for ongoing assurance of the compliance of products.

### Proposal 10

7.34 Remove the specific exclusion for PFOS and PFOA from the scope of the group standard since this is no longer necessary because they are (or will be) listed as persistent organic pollutants (POPs) under schedule 2A of the HSNO Act. However, firefighting foam products containing PFOA-related compounds will remain within the scope of the group standard for the duration of the transitional period specified.

7.35 The EPA recommends proceeding with this proposal. It is expected that PFOA and PFOA-related compounds will be added to schedule 2A of the HSNO Act by 3 December 2020.

## 8. Appendix 1. Fire Fighting Chemicals Group Standard Amendment 2020

1. This is a further version of the Fire Fighting Chemicals Group Standard 2017 (**2017 Group Standard**) to that which was created for consultation purposes in October-December 2020 when the proposal to amend the Group Standard was publicly notified.
2. The track changes represent a proposal to amend the original Group Standard. This would result in an instrument called the **Fire Fighting Chemicals Group Standard Amendment 2020**. Prior to, or at the time of, it coming into force, a consolidated version of the 2017 Group Standard that incorporates the changes would be published.
3. This version is intended to accompany an EPA staff report to the decision making committee that will consider the proposal for amendments.

### Fire Fighting Chemicals Group Standard 2017 – HSR002573

Pursuant to clause 5 of Schedule 7 of the Hazardous Substances and New Organisms Act 1996 (the Act), the Environmental Protection Authority has reviewed and, for the purpose of updating, reissues this Group Standard.

#### Table of Contents

1	Name of Group Standard .....	32
2	Commencement .....	32
3	Interpretation .....	32
4	Scope of Group Standard .....	32
5	Conditions of Group Standard.....	33
	<b>Schedule 1: Conditions of Group Standard.....</b>	<b>34</b>
	<b>Part 1– Compliance with EPA Notices .....</b>	<b>34</b>
1	Labelling and advertising .....	34
2	Safety data sheets.....	34
3	Packaging.....	34
4	Disposal.....	34
5	Restriction on supply, storage and use .....	34
	<b>Part 2 – Notification to the Authority .....</b>	<b>34</b>
6	Inventory of Chemicals.....	34
	<b>Part 3 – Other Matters .....</b>	<b>35</b>
7	Assigning a substance to a group standard .....	35
	<b>Part 4 – Fire Fighting Foams .....</b>	<b>35</b>
8	Record of assignment to be provided before supplying.....	35

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9	Requirement to display certification of fluorine content of fire fighting foams.....	36
10	Requirement to contain fire fighting foams .....	36
11	Restrictions on use of legacy PFAS fire fighting foams .....	36
12	Training and testing of legacy PFAS fire fighting foams .....	36
13	Use of legacy PFAS fire fighting foams in contained fire fighting systems .....	36
14	Use of legacy PFAS fire fighting foams in uncontained fire fighting systems .....	36
15	Disposal of legacy PFAS fire fighting foams and associated waste products .....	37
16	Exception in relation to disposal of certain legacy PFAS fire fighting foam waste products.....	37
17	Prohibition on import or manufacture of certain C6 fluorotelomer fire fighting foams.....	37
18	Transitional period for use of C6 fluorotelomer foams .....	38
19	Training and testing of C6 fluorotelomer foams .....	38
20	Use of C6 fluorotelomer fire fighting foams in fire fighting systems .....	38
21	Requirement for permission to use C6 fluorotelomer fire fighting foams after the transitional period .....	38
22	Disposal of C6 fluorotelomer fire fighting foams and associated waste products .....	39
23	Exception in relation to disposal of C6 fluorotelomer fire fighting foam waste products.	39
24	Requirements relating to transitioning fire fighting systems to PFAS free fire fighting foams.....	39
	<b>Schedule 2: Interpretation .....</b>	<b>41</b>
	<b>Explanatory note .....</b>	<b>44</b>

## 1 Name of Group Standard

Fire Fighting Chemicals Group Standard 2017.

### *HSNO Approval Number*

The HSNO Approval Number for this Group Standard is HSR002573.

## 2 Commencement

This Group Standard comes into force on 1 December 2017.

## 3 Interpretation

- (1) In this Group Standard, unless the context otherwise requires, words and phrases shall have the meanings given to them in Schedule 2. Any words or phrases that are used but not defined in this Group Standard but that are defined in the Act have the same meaning as the Act.
- (2) In this Group Standard, references to a hazardous property of a substance being equivalent to a specified HSNO hazard classification, means a reference to the specified hazard classification as set out in the Hazardous Substances (Classification) Notice 2017.

## 4 Scope of Group Standard

### *Substances covered by Group Standard*

- (1) This Group Standard applies to hazardous substances and waste products under section 96B(2)(a), (b), ~~and (c)~~ and (d) of the Act.
- ~~(2)~~ This Group Standard applies to solid or liquid substances that are imported or manufactured for use as a fire fighting chemical.
- ~~(3)~~ Notwithstanding subclauses (2) and 6(b), this Group Standard applies to the use of legacy PFAS fire fighting foams only for the following applicable transitional periods—
  - (a) in relation to use in contained fire fighting systems, until 3 December 2025; and
  - (b) in relation to use in uncontained fire fighting systems, until 31 December 2022.
- ~~(4)~~ This Group Standard applies to the following waste products—
  - (a) legacy PFAS fire fighting foam waste products, only until 3 December 2025; and
  - (b) C6 fluorotelomer fire fighting foam waste products.
- ~~(2)~~(5) A substance referred to in subclause (2) must have one or more of the following (but only the following) hazards:
  - (a) acute toxicity, HSNO 6.1D or 6.1E classification;
  - (b) HSNO 6.1E (aspiration hazard) classification;
  - (c) skin irritancy, HSNO 6.3A or 6.3B classification;
  - (d) eye corrosivity, HSNO 8.3A classification;
  - (e) eye irritancy, HSNO 6.4A classification;
  - (f) respiratory sensitisation, HSNO 6.5A classification;
  - (g) contact sensitisation, HSNO 6.5B classification;

- (h) mutagenicity, HSNO 6.6A or 6.6B classification;
- (i) reproductive toxicity, HSNO 6.8A, 6.8B or 6.8C classification;
- (j) target organ toxicity, HSNO 6.9A or 6.9B classification;
- (k) ecotoxicity, HSNO class 9.

*Substances excluded from Group Standard*

~~(3)~~(6) This Group Standard excludes any substance if it contains—

- (a) asbestos; or
- (b) subject to subclauses (3) and (4)(a) which relate to use and waste products, a chemical that:
  - (i) is a persistent organic pollutant within the definition in section 2 of the Act; or
  - (ii) exhibits the characteristics of a persistent organic pollutant as set out in paragraph 1 of Annex D to Schedule 1AA of the Act.

~~(4) This Group Standard excludes any substance that is or contains—~~

- ~~(-) perfluoroalkyl sulfonate; or~~
- ~~(-) perfluorooctanoic acid.~~

- (7) This Group Standard excludes any substance that contains a chemical that is a mutagen or reproductive toxicant that is not listed on the Inventory of Chemicals, unless—
  - (a) the new mutagen or reproductive toxicant is used to completely replace an existing mutagen or reproductive toxicant in the substance; and
  - (b) the new mutagen or reproductive toxicant has a lower hazard classification than the existing mutagen or reproductive toxicant.
- (8) This Group Standard excludes any substance that is a hazardous chemical not listed on the Inventory of Chemicals.

(9) For the purposes of subclause ~~(8)~~, “chemical” means any element or compound in its natural state or obtained by any production process, including any impurities and any additive necessary to preserve the stability of the chemical but excluding any solvent which may be separated without affecting the stability of the chemical or changing its composition.

## 5 Conditions of Group Standard

The conditions that specify the obligations and restrictions for substances and waste products covered by this Group Standard are set out in Schedule 1.

Advisory Note: In addition to requirements specified in this document, people who are undertaking work in a workplace involving hazardous substances or waste products covered by this Group Standard have obligations under the Health and Safety at Work Act 2015.

## Schedule 1: Conditions of Group Standard

### Part 1– Compliance with EPA Notices

#### 1 Labelling and advertising

Substances covered by this Group Standard [under clause 4 \(Scope of Group Standard\)](#) must comply with the relevant provisions of the Hazardous Substances (Labelling) Notice 2017.

#### 2 Safety data sheets

Substances covered by this Group Standard [under clause 4 \(Scope of Group Standard\)](#) must comply with the relevant provisions of the Hazardous Substances (Safety Data Sheet) Notice 2017.

#### 3 Packaging

Substances covered by this Group Standard [under clause 4 \(Scope of Group Standard\)](#) must comply with the relevant provisions of the Hazardous Substances (Packaging) Notice 2017.

#### 4 Disposal

[Subject to conditions 22 and 23, S](#)substances covered by this Group Standard [under clause 4 \(Scope of Group Standard\)](#) must comply with the relevant provisions of the Hazardous Substances (Disposal) Notice 2017.

#### 5 Restriction on supply, storage and use

Substances covered by this Group Standard [under clause 4 \(Scope of Group Standard\)](#) must comply with the relevant provisions of the Hazardous Substances (Hazardous Property Controls) Notice 2017.

### Part 2 – Notification to the Authority

#### 6 Inventory of Chemicals

- (1) When a substance is imported into, or manufactured in, New Zealand after 30 June 2006, the importer or manufacturer must ensure that all hazardous chemicals contained in the substance are listed on the Inventory of Chemicals.
- (2) If that substance contains a hazardous chemical that is not listed on the Inventory of Chemicals, then the importer or manufacturer of the substance must at the time they first import or manufacture the substance, notify the Authority in writing of—
  - (a) the name of the substance; and
  - (b) the HSNO approval number and/or title of the group standard under which the substance is deemed to have been approved; and
  - (c) the name and CAS number of the chemical not listed on the Inventory of Chemicals that is present in the substance; and

- (d) the concentration of that chemical in the substance; and
  - (e) the hazardous properties of the chemical, including the provision of the relevant hazard data used to assign the substance to the group standard; and
  - (f) the proposed use of the substance.
- (3) Subclause (2) applies subject to clause 4(~~67~~) – (~~98~~) of this Group Standard (Scope of Group Standard).

## Part 3 – Other Matters

### 7 Assigning a substance to a group standard

- (1) If an importer or manufacturer considers that this Group Standard applies to the importation or manufacture of a substance, then the importer or manufacturer is responsible for assigning the substance to this Group Standard.
- (2) In order to assign the substance to this Group Standard, the importer or manufacturer must—
  - (a) ensure that the substance complies with clause 4 of this Group Standard (Scope of Group Standard); and
  - (b) keep a record of how it was determined the substance complies with clause 4 of this Group Standard (Scope of Group Standard).
- (3) The importer or manufacturer must—
  - (a) ensure that the record contains sufficient information to allow for independent verification that the substance complies with clause 4 of this Group Standard (Scope of Group Standard); and
  - (b) have that record available for inspection.

## Part 4 – Fire Fighting Foams

### 8 Record of assignment to be provided before supplying

- (1) An importer or manufacturer of a fire fighting foam must, as soon as practicable after its first importation or manufacture and before supplying it to any other person, provide to the EPA a copy of the record of assignment described in condition 7(2)(b), along with the full composition of the fire fighting foam, on a form approved by the EPA.
- (2) An importer or manufacturer of a fire fighting foam must, as soon as practicable after changing the composition of a fire fighting foam after first importation or manufacture and before supplying it to any other person, update the record of assignment described in conditions 7(2)(b) and provide it to the EPA, along with the full updated composition of the fire fighting foam, on a form approved by the EPA.

## **9 Requirement to display certification of fluorine content of fire fighting foams**

A person must not supply a fire fighting foam to any other person unless the manufacturer's certification of its fluorine content (including 0% if applicable) is clearly displayed on a label or document provided with the fire fighting foam.

## **10 Requirement to contain fire fighting foams**

- (1) Subject to conditions 11-16, 19, 20 and 21, a person who uses a fire fighting foam must take reasonable care to contain it within its intended application area.
- (2) For the purposes of subclause (1), a person who uses a fire fighting foam meets a reasonable standard of care if—
  - (a) the fire fighting foam is discharged to the environment for the purpose of responding to an emergency; and
  - (b) the person takes all reasonable and practicable measures to minimise environmental harm.

### Legacy PFAS fire fighting foams

## **11 Restrictions on use of legacy PFAS fire fighting foams**

A person must not use a legacy PFAS fire fighting foam other than in accordance with conditions 12 to 16.

## **12 Training and testing of legacy PFAS fire fighting foams**

- (1) A person must not use a legacy PFAS foam for training.
- (2) During the applicable transitional period set out in clause 4(3) of this Group Standard, a person may use a legacy PFAS fire fighting foam for the purpose of testing the operation of a fire fighting system provided that all releases are contained so that the fire fighting foam is not released to the environment.

## **13 Use of legacy PFAS fire fighting foams in contained fire fighting systems**

During the applicable transitional period set out in clause 4(3) of this Group Standard, a person may use a legacy PFAS fire fighting foam for the purpose of operating or maintaining a contained fire fighting system if the PFAS fire fighting foam is—

- (a) contained within the fire fighting system; or
- (b) stored in containers that are designated as being part of the fire fighting system for use in refilling the fire fighting system with fire fighting foam (except where the fire fighting system is a small fire extinguisher).

## **14 Use of legacy PFAS fire fighting foams in uncontained fire fighting systems**

- (1) During the applicable transitional period set out in clause 4(3) of this Group Standard, a person may use a legacy PFAS fire fighting foam for the purpose of operating or maintaining an uncontained fire fighting system if the fire fighting foam is—
  - (a) contained within the fire fighting system; or

- (b) contained in storage containers that are designated as being part of the fire fighting system for use in refilling the fire fighting system with fire fighting foam (except where the fire fighting system is a small fire extinguisher); or
- (c) used by discharging the fire fighting foam from the fire fighting system for the purpose of responding to an emergency in accordance with the purpose and design of the fire fighting system.

(2) Where subclause (1)(c) applies, the person must take all reasonably practicable steps to prevent the discharge of the foam to the environment.

## **15 Disposal of legacy PFAS fire fighting foams and associated waste products**

(1) Subject to condition 16, a person must not dispose of a legacy PFAS fire fighting foam or a legacy PFAS fire fighting foam waste product other than by one of the following methods, to the extent permitted by the laws of New Zealand, —

- (a) high-temperature incineration; or
- (b) any other method that conforms with section IV.G.2 of of the Basel Convention General Technical Guidelines on Persistent Organic Pollutant Wastes; or
- (c) export from New Zealand for the purpose of disposal by a method that conforms with section IV.G.2 of the Basel Convention General Technical Guidelines on Persistent Organic Pollutant Wastes.

(2) The methods described in subclause (1) do not include dilution.

## **16 Exception in relation to disposal of certain legacy PFAS fire fighting foam waste products**

Condition 15 does not apply to a legacy PFAS fire fighting foam waste product that is:

- (a) a liquid waste product disposed of in accordance with an applicable trade waste bylaw if the bylaw expressly permits the discharge of the trade waste containing a PFAS component or components because the component or components are present below a specified concentration; or
- (b) a solid waste product that is disposed of to landfill subject to:
  - (i) meeting the HEPA Landfill Acceptance Criteria; and
  - (ii) the total concentration for PFOA, its salts and PFOA-related compounds does not exceed 50 mg/kg (determined as fluorine).

### C6 fluorotelomer fire fighting foams and C6 fluorotelomer fire fighting foam waste products

## **17 Prohibition on import or manufacture of certain C6 fluorotelomer fire fighting foams**

A person must not import or manufacture a C6 fluorotelomer fire fighting foam if it has more than:

- (a) 0.025 mg/kg of PFOA or any of its salts; or
- (b) 1 mg/kg of any individual PFOA-related compound; or
- (c) 1 mg/kg of a combination of PFOA-related compounds.

## **18 Transitional period for use of C6 fluorotelomer fire fighting foams**

For the purposes of conditions 19-21, the transitional period for the use of C6 fluorotelomer fire fighting foams ends on 3 December 2025.

Advisory note: At the end of the transitional period, C6 fluorotelomer fire fighting foam will only be able to be used in a contained fire fighting system, subject to a permission being granted in accordance with condition 21 of this Schedule, but may still be imported or manufactured for this use in accordance with this Group Standard.

## **19 Training and testing of C6 fluorotelomer foams**

- (1) A person must not use a C6 fluorotelomer fire fighting foam for training.
- (2) During the transitional period, a person may use a C6 fluorotelomer fire fighting foam for the purpose of testing the operation of a fire fighting system if all releases are contained so that the fire fighting foam is not released to the environment.

## **20 Use of C6 fluorotelomer fire fighting foams in fire fighting systems**

- (1) During the transitional period, a person may use a C6 fluorotelomer fire fighting foam for the purpose of operating or maintaining a fire fighting system if the fire fighting foam is—
  - (a) contained within the fire fighting system; or
  - (b) contained in storage containers that are designated as being part of the fire fighting system for use in refilling the fire fighting system with fire fighting foam; or
  - (c) in uncontained fire fighting systems used by discharging the fire fighting foam from the fire fighting system for the purpose of responding to an emergency in accordance with the purpose and design of the system.
- (2) Where subclause (1)(c) applies, the person must take all reasonably practicable steps to prevent the discharge of the foam to the environment.

## **21 Requirement for permission to use C6 fluorotelomer fire fighting foams after the transitional period**

- (1) After the transitional period, a person cannot use a C6 fluorotelomer fire fighting foam in a contained fire fighting system except subject to this Group Standard and in accordance with a permission under section 95A of the Act granted by the EPA.
- (2) The EPA may require the applicant to provide a management plan addressing some or all of the matters set out in subclause (3) prior to the permission referred to in subclause (1) being considered.
- (3) The EPA may impose conditions under the permission referred to in subclause (1) including to address the following matters:
  - (a) the adverse effects of the use of C6 fluorotelomer fire fighting foam in a fire fighting system;
  - (b) the secure containment of the C6 fluorotelomer fire fighting foam in the fire fighting system;
  - (c) the risks of adverse effects from discharge to the environment as a result of the fire fighting system's use in an emergency;

- (d) a timeline for the appropriate removal of the C6 fluorotelomer fire fighting foam from the fire fighting system and the appropriate disposal of the C6 fluorotelomer fire fighting foam and any C6 fluorotelomer fire fighting foam waste.
- (4) The permission referred to in subclause (1) may include a condition that the holder of the permission notify the EPA of any change in relation to any matter in subclause (3) above.
- (5) Where there is any inconsistency between the provisions of this Group Standard and the conditions in a permission referred to in subclause (1), the provisions of this Group Standard will prevail over those conditions to the extent of any inconsistency.

## **22 Disposal of C6 fluorotelomer fire fighting foams and associated waste products**

- (1) Subject to condition 23, a person must not dispose of a C6 fluorotelomer fire fighting foam or a C6 fluorotelomer fire fighting foam waste product other than by one of the following methods, to the extent permitted by the laws of New Zealand, —
- (a) high-temperature incineration; or
- (b) any other method that, if the foam or waste product were or contained PFOA-related compounds, would conform with section IV.G.2 of the Basel Convention General Technical Guidelines on Persistent Organic Pollutant Wastes; or
- (c) export from New Zealand for the purpose of disposal by a method that, if the foam or waste product were or contained PFOA related compounds, would conform with section IV.G.2 of the Basel Convention General Technical Guidelines on Persistent Organic Pollutant Wastes.
- (2) The methods described in subclause (1) do not include dilution.

## **23 Exception in relation to disposal of C6 fluorotelomer fire fighting foam waste products**

Condition 22 does not apply to a C6 fluorotelomer fire fighting foam waste product that is—

- (a) a liquid waste product that is disposed of in accordance with an applicable trade waste bylaw if the bylaw expressly permits the discharge of the trade waste containing a PFAS component or components because the component or components are present below a specified concentration; or
- (b) a solid waste product that is disposed of to landfill:
- (i) in accordance with any applicable landfill acceptance criteria, and
- (ii) where the leachable concentration for PFAS does not exceed 0.05 mg/kg (determined as fluorine) and the total concentration for PFAS does not exceed 50 mg/kg (determined as fluorine).

*Transitioning fire fighting systems to PFAS-free foam*

## **24 Requirements relating to transitioning fire fighting systems to PFAS free fire fighting foams**

- (1) This condition applies where a person who operates a fire fighting system intends to transition it to a fire fighting system that uses PFAS-free fire fighting foam.

- (2) An operator of the fire fighting system, before transitioning the fire fighting system, must ensure that—

  - (a) the fire fighting system is thoroughly cleaned so as to remove, as far as reasonably practicable, any residual fire fighting foam or waste product; and
  - (b) any fire fighting foam or waste products that have been removed from the fire fighting system or generated directly or indirectly as a result of the cleaning process are collected and securely contained for disposal.
- (3) A person who treats, collects or transports a fire fighting foam or waste product for disposal must take all reasonably practicable steps to prevent its discharge to the environment.
- (4) In this condition, **fire fighting foam or waste product** means any of the following:

  - (a) legacy PFAS fire fighting foam
  - (b) legacy PFAS fire fighting foam waste product
  - (c) C6 fluorotelomer fire fighting foam
  - (d) C6 fluorotelomer fire fighting foam waste product.

## Schedule 2: Interpretation

**Act** means the Hazardous Substances and New Organisms Act 1996

**applicable trade waste bylaw** includes a trade waste agreement or trade waste consent made or recognised under the applicable trade waste bylaw

**asbestos** has the same meaning as in regulation 3(1) of the Health and Safety at Work (Asbestos) Regulations 2016, but does not include substances that contain naturally occurring traces of asbestos

**Basel Convention** means the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, adopted on 22 March 1989

**Basel Convention General Technical Guidelines on Persistent Organic Pollutant Wastes** means the General technical guidelines on the environmentally sound management of wastes consisting of, containing or contaminated with persistent organic pollutants adopted by decision BC-14/4 at the Conference of the Parties to the Basel Convention in 2019, version UNEP/CHW.14/7/Add.1/Rev.1

**C6 fluorotelomer fire fighting foam** means a fire fighting foam that—

(a) contains fluorinated organic compounds predominantly of a perfluorinated 6-carbon chain length or shorter; and

(b) in its concentrated form does not contain more than a total of 50 mg/kg of compounds where the perfluorinated part of the carbon chain is longer than 6 carbon atoms, but excluding PFOS and PFHxS which have a separate total limit of 10 mg/kg

**C6 fluorotelomer fire fighting foam waste product** means a waste product generated either directly or indirectly from the use of C6 fluorotelomer fire fighting foam in a fire fighting system including storage for use in a fire fighting system, or the cleaning out of a fire fighting system which has contained C6 fluorotelomer fire fighting foam

**CAS number** means Chemical Abstract Services Registry number

**condition** means any obligation or restriction imposed upon a substance by a group standard

**contained fire fighting system** means a system made up of a fire fighting system and equipment, structures or mechanisms that collect or contain fire fighting foam when it is discharged so that the foam is prevented from being released to the environment

**emergency** means an emergency as defined in section 6 of the Fire and Emergency New Zealand Act 2017, or an emergency declared under Part 9 of the Act

**fire fighting chemical** means any chemical that is used to prevent, suppress or extinguish a fire ~~and includes any suppressant that reduces the surface tension of water and/or produces a foam which is applied directly on to the flame of a fire to extinguish the fire. It also~~ and includes fire

retardants that are mixed with water and applied to unburnt vegetation so that combustion is not supported

**fire fighting foam** means a fire fighting chemical that includes a foam, and both a foam concentrate and an aqueous solution for use in the production of fire fighting foam

**fire fighting system—**

- (a) means a system for preventing, suppressing or extinguishing a fire and includes:
- (i) a fire extinguishing system on a fire vehicle or appliance;
  - (ii) an on-site fixed fire extinguishing system;
  - (iii) any pumps, pipes, hoses, nozzles, sprinklers, and other equipment associated with the system; or
  - (iv) a small fire extinguisher

**HEPA Landfill Acceptance Criteria** means the landfill acceptance criteria, for both leachable and total concentrations, detailed in Table 7, Chapter 14, of the PFAS National Environmental Management Plan Version 2.0 prepared by the National Chemicals Working Group of the Heads of EPAs Australia and New Zealand, dated January 2020

**Inventory of Chemicals** means an inventory kept and maintained by the Authority of chemicals known to be present in New Zealand

**legacy PFAS fire fighting foam** means a fire fighting foam that contains PFOA-related compounds

**legacy PFAS fire fighting foam waste product** means a waste product generated directly or indirectly from the use of legacy PFAS fire fighting foam in a fire fighting system including storage for use in the fire fighting system, or the cleaning out of a fire fighting system that has contained legacy PFAS fire fighting foam.

**perfluoroalkyl sulfonate** is a generic term used to describe any fully fluorinated carbon chain sulfonate, and includes any higher and lower homologues as well as perfluorooctane sulfonate

**perfluorooctane sulfonate (PFOS)** means the parent acid (CAS number 1763-23-1) and any salts thereof, including the potassium (CAS number 2795-39-3), lithium (CAS number 29457-72-5), ammonium (CAS number 29081-56-9) and diethanolamine (CAS number 70225-14-8) salts

**perfluorooctanoic acid (PFOA)** is a fully fluorinated eight-carbon chain carboxylic acid (CAS number 335-67-1)

**PFAS (perfluoroalkyl and polyfluoroalkyl substances)** means a class of fluorinated organic compounds containing at least one fully fluorinated carbon atom

**PFAS fire fighting foam** means a fire fighting foam that contains PFAS, and includes legacy PFAS fire fighting foam and C6 fluorotelomer fire fighting foam

**PFAS free fire fighting foam** means a fire fighting foam that does not contain PFAS

**PFHxS** means perfluorohexane sulfonate

**PFOA (perfluorooctanoic acid)** is a fully fluorinated eight-carbon chain carboxylic acid (CAS number 335-67-1), including any of its branched isomers

**PFOA-related compounds** means any substances that degrade to PFOA, including any substances (including salts and polymers) having a linear or branched perfluoroheptyl group with the moiety (C<sub>7</sub>F<sub>15</sub>)C as one of the structural elements

**PFOS (perfluorooctane sulfonate)** means the parent acid (CAS number 1763-23-1), its salts, and any derivatives of the formula C<sub>8</sub>F<sub>17</sub>SO<sub>2</sub>X, where X = halide, amide, esters, and other derivatives including polymers

**small fire extinguisher** means a fire extinguisher with a capacity of less than 90L and includes a hand-held or mobile fire extinguisher

**solid waste product** means waste generated as a solid or converted to a solid for disposal, where the waste was generated or converted in connection with the use or cleaning out of a fire fighting system, or the cleaning of fire fighting foam out of a fire fighting system

**substance** means any solid or liquid fire fighting chemical that is within the scope of clause 4 of this Group Standard (Scope of Group Standard)

**supply** includes supply (or resupply) by way of sale, exchange, lease, hire, hire purchase or gift; and occurs on the passing of possession to the person, or agent of the person, to be supplied

**uncontained fire fighting system** means a fire fighting system other than a contained fire fighting system

**use** includes storage for use in an emergency

**workplace** has the same meaning as in [section 20 of](#) the Health and Safety at Work Act 2015

## Explanatory note

*This note is not part of the group standard but is intended to provide guidance to users of the group standard.*

- (1) Under the Act, section 96E(3) provides that a hazardous substance to which section 96B(2)(a) applies is deemed to have been approved by the Authority under section 29.
- (2) Any transitional measures that were in this Group Standard immediately prior to 1 December 2017 but have expired have not been included in this reissued Group Standard.
- (3) All amendments made under section 96B to the Group Standard since it was first issued that are still in force have been incorporated into this reissued Group Standard.
- (4) In addition to requirements specified in this document, people who are undertaking work in a workplace involving hazardous substances covered by this Group Standard have obligations under the Health and Safety at Work Act 2015.
- (5) A person relying on this Group Standard will have four years (until 1 December 2021) to comply with the Labelling, Safety Data Sheet and Packaging Notices. Within that time, a person may comply with the equivalent conditions in the Group Standard in force immediately before 1 December 2017. All other aspects of this Group Standard apply from 1 December 2017.

(6) This Group Standard:

- (a) does not authorise the importation or manufacture of any fire fighting foam that falls within a listing as a persistent organic pollutant in Schedule 2A of the Act; and
- (b) is not intended to provide for conditions for the storage and disposal of any fire fighting foams that fall within the description of a persistent organic pollutant listed in Schedule 2A of the Act after the date on which any exemption for a specified use described in that Schedule expires.

~~(6)~~(7) This Group Standard authorises the use of legacy PFAS fire fighting foams for a transitional period strictly in accordance with the provisions of the Group Standard. The duration of any use authorised by this Group Standard is intended to align with the listing of PFOA, its salts and PFOA-related compounds as a persistent organic pollutant and the specified use exemption for fire fighting foams containing PFOA-related compounds under the Stockholm Convention, once that listing and exemption is included in Schedule 2A of the Act.

(8) The transitional periods for PFAS fire fighting foams are aimed at phasing out their use, as a measure to manage the risks of:

- (a) PFAS fire fighting foams as hazardous substances and
- (b) PFAS fire fighting foam waste products as waste products that contain hazardous substances.

(9) This Group Standard imposes disposal requirements in relation to PFAS fire fighting foam as a hazardous substance and PFAS fire fighting foam waste products as waste products that contain hazardous substances.

(10) After the transitional period has ended for legacy PFAS fire fighting foams, the Hazardous Substances (Storage and Disposal of Persistent Organic Pollutants Notice 2004 (Gazette

Notice) or its successor instrument(s) will apply to fire fighting foams containing PFOA-related compounds.

(11) After the transitional period has ended, although fire fighting foams containing PFOA-related compounds will no longer be authorised for use or regulated as hazardous substances under this Group Standard, storage and disposal requirements under the Gazette Notice will apply on the basis of their status as persistent organic pollutants.

(12) This Group Standard continues the exclusion of perfluoroalkyl sulfonate and perfluorooctanoic acid from its scope by excluding all persistent organic pollutants from its scope.

## 9. Appendix 2: Detailed response to submissions

**Table 3: Phase out of C6 fluorotelomer foams**

Summary of submitter comment	EPA Response and Update to Proposals
<p><b>General concerns</b></p> <p>In response to general questions on their reasons for making a submission and the preferred outcome of the consultation, submitters raised the issues below.</p>	<p>The EPA's proposals to amend the Fire Fighting Chemicals Group Standard were not solely focussed on implementing commitments under the Stockholm Convention. That was the case in respect of the proposals relating to the C8-PFAS foams, whereas the proposals in respect of C6-PFAS foams reflected the growing international regulatory concern around all PFAS compounds and particularly their presence in firefighting foams that can readily lead to their release to the environment. The proposals were aimed at ensuring the group standard achieved the purpose of the HSNO Act in protecting the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances.</p>
<p>The proposal to phase out short chain C6 fluorotelomer based firefighting foams exceeds New Zealand's commitments under the Stockholm Convention and is not aligned with the policies of comparable jurisdictions.</p> <ul style="list-style-type: none"><li>AECOM, while agreeing with the proposal to phase out C8 long chain PFAS foams, was nevertheless concerned that "EPA is also proposing to phase out short chain C6 (fluorotelomer based) firefighting foams which is above and beyond Stockholm Convention and Queensland policy."</li></ul>	<p>The EPA disagrees with the comment that the proposals are not aligned with the policies of comparable jurisdictions, as can be seen from the information provided in paragraphs 4.7 - 4.44 above.</p>

## Summary of submitter comment

Concerns that the EPA has assumed that foams can be flushed out of existing fire-fighting systems and replaced with any new product permitted under the group standard.

- Tyco New Zealand Ltd (T/A Wormald) submitted that "...The document is silent on the engineering associated with changing such systems and although not mentioned it reads like the EPA has assumed that any new replacement foam concentrate will be a "drop in replacement" for the existing. This is not necessarily the case.

## EPA Response and Update to Proposals

The EPA has not assumed that there are necessarily 'drop-in' replacements for PFAS foams in all use situations. However, it is understood there is increasing availability of fluorine-free foams that are suitable alternatives in most applications. This issue will be addressed by the increased transitional periods recommended in this Update Report.

Concerns about the potential cost impact on the owners of fire-fighting systems of having to replace these systems to accommodate new firefighting foams.

- Port Taranaki noted that “A decontamination exercise involving firefighting tugs and the major firefighting system on the wharfline at the Newton King Tank Terminal would require the significant part of the Port to be closed and thus render the key Port asset to become inoperable for an extended period of time. The inability to operate the fuel and methanol operations during this time would have major impacts on the Port, its customers and the surrounding economy that relies on this critical asset.”

### Phase out options

In response to a direct question about phasing out C6-PFAS foams at the same timeframe as C8-PFAS foams, 11 submitters disagreed with the proposal:

The FFFC noted that “Most major national governments currently allow the sale and use of C6 AFFF for class B applications, including Canada, European Union, Japan and the United States. Even (US) states that have passed laws prohibiting the sale of C6 AFFF have exemptions for high-hazard applications.”

In general, Methanex supports the phase out of fluorine free foams, but were “...concerned that the full transition may not be completed within the time period being allowed to phase out the C6-based foams which are used at present”

Although the Fire Protection Association indicated they were broadly supportive of the proposals to remove PFAS foams from New Zealand, they stated “the FPA is strongly of the opinion that a total phase out of C6 fluorotelomer agents at this time is not desirable and is premature.” They suggested the proposals ‘should be modified to reflect the pragmatism of the State of Washington laws, where the use of C6-foams is restricted to specified risks, until it can be demonstrated that the replacement agents

It is accepted that replacement of large quantities of firefighting foam is an expensive undertaking, and if cleaning and decontamination is also required, then this will add considerable additional costs as well as the costs of disposal. However, it is expected that where C8-PFAS foams are still in use that they would be coming to near the end of their expected lifetime and would be scheduled for replacement in the near future, regardless of any regulatory changes. In relation to C6-PFAS foams, these costs will be ameliorated by the increased transitional periods recommended in this Update Report.

### Updates to proposal

Following the consideration of these submissions, the EPA proposes that the transition period for C6-PFAS foams, for both uncontained and contained uses, be five years, with provision for contained uses to be allowed after the transition period on a case-by-case basis, subject to a permission granted under section 95A of the HSNO Act.

These permissions are proposed to be assessed similarly to the exemptions currently granted under the South Australia and Queensland firefighting foam regulatory regimes, and are envisaged as being similar to the waiver mechanism contained in the Californian legislation currently under consideration – see paragraph 4.44.

Permissions will be granted for a set period (e.g. 2-3 years) with subsequent permissions able to be granted for continued use following the expiry of a permission. The issuing of subsequent permissions may be subject to further consideration of matters such as the need to retain PFAS foam still exists and that there is no commercially available replacement that does not contain PFAS and that is capable of suppressing fire for that specific use, and provision of a detailed plan, with timelines, for the transition to firefighting foam that does not contain PFAS.

C6-PFAS foam will still be able to be imported/manufactured and supplied for allowed contained uses but it will be required to meet the standard

are fit-for-purpose'. (see paragraph 4.43 for an update on the Washington State laws).

17 submitters wanted the phase out of C6 fluorotelomer to be reconsidered and/or delayed:

- Port Taranaki noted “As our systems would fall under the dispersive system definition, we do not consider the 2-year grace period to be appropriate.”
- The Fire Fighting Foam Coalition (FFFC) wanted the EPA to “...continue to allow the sale and use for emergencies of modern fluorotelomer C6 AFFF for high-hazard applications in New Zealand.”
- The NZDF wanted the EPA to: “Agree that there are some industry/government sectors where currently only the use of AFFF is suitable and ... Allow for the limited use of high purity AFFF C6, until such time an F3 foam is developed that meets the same or better performance standards of AFFF.”
- Fire and Emergency New Zealand (FENZ) wants a standard that is fit for purpose, and “...a phased, managed withdrawal of fire fighting chemicals that contain PFAS, that is:
  - based on scientific evidence and robust rationale
  - practically achievable by users of these chemicals
  - reflective of the actual risks that their use presents.”

Three submitters agreed with the proposal:

- NZ Airports made their agreement “...subject to EPA having satisfied itself via consultation with appropriate bodies (e.g. CAA and FENZ) of the effectiveness of the fluorine free replacements.”
- Fire Engineering Solutions noted that “The difference in persistence between C8 and C6-PFAS is insignificant...”
- RefiningNZ agreed to the phase out of C6 and C8-firefighting foams at the same time.

Submitters were asked to state a preference between two options for phasing out C6-foams:

stipulated in the EU POPs Regulation 2019/1021 (previously contained in the EU REACH Regulation 2017/1000), that it must not contain greater than 0.025 mg/kg of PFOA or any of its salts or greater than 1 mg/kg of any individual PFOA-related compound or a combination of PFOA-related compounds.

C6-PFAS foam that has been imported or is in use prior to the entry into force of the group standard amendments will not need to meet this standard.

- 
- 14 submitters indicated a preference for Option 2: Grant permissions to continue to use C6-foams
  - 3 submitters preferred Option 1: Phase out C6 and C8-firefighting foams at the same time
  - 3 submitters did not answer the question
  - 16 Submitters provided reasons for their selection:
  - 3 were concerned with the proposed phase out time frame:
    - Methanex NZ Ltd selected 'Grant permissions to continue to use C6 foams' as their preferred option but wanted "...a longer time period than currently proposed."
    - 4Sight Consulting also selected 'Grant permissions', on the proviso that it "...will provide for a 5-year transition with the potential for a further 5 years by way of specific exemption."
  - Other submissions reflected the concerns previously expressed about the effectiveness of fluorine-free foams:
    - Port Taranaki wants to "...retain use of alcohol-resistant foam concentrates that have proven capability for our applications."
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**Cost**

Six submitters indicated that they can estimate the costs:

Tyco New Zealand Ltd, a supplier of engineered fire protection systems, noted that costs could exceed "... \$500K if foam, hardware, pumps and tanks needed to be changed" (it is unclear what type of application was considered here).

Air New Zealand stated that based on their experience, "...these costs would be significant likely many millions though not yet finally quantified." This was considered to be across all their operations and would include costs for replacement foams, disposal of the PFAS foams and 'the high likelihood for significant infrastructure costs due to the age and nature of these sites'.

A further six submitters indicated that they are unable to estimate these costs:

NZDF noted that the "Disposal costs will also be determined in part by what standard EPA sets for waste/cleaning by-products."

The FPA raised concerns about the potential costs of phasing out C6 fluorotelomer agents, noting that "In most cases, the replacement will entail a significant redesign, physical installation works and recommissioning. The costs to New Zealand to carry out this work should not be underestimated."

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Summary of submitter comment

EPA Response and Update to Proposals

Table 4. Fluorine-free foams

Summary of submitter comment	EPA Response and Update to Proposals
<p><b>Unsuitable applications for fluorine-free foams</b></p> <p>14 submitters indicated that there are applications for which fluorine-free foams are unsuitable:</p>	<p>The EPA understands that there has been significant development of fluorine-free foams in recent years, and that the range of commercial products available, and industry approvals for these, continues to expand.</p>
<p>The Fire Fighting Foam Coalition Inc., representing manufacturers of firefighting foams, notes that their members "...understand that current-day fluorine-free foams do not provide an equivalent level of performance to AFFF agents for all class B applications and hazards. Accordingly, they do not support a phase out of modern fluorotelomer C6 AFFF."</p>	<p>The EPA also understands that:</p> <p>A large number of major airports around the world have transitioned to fluorine free foams, including: London Heathrow, Gatwick, Edinburgh, Manchester, Stansted, Copenhagen, Stockholm, Oslo, Helsinki, Paris Charles de Gaulle, Paris Orly, Cologne, Dortmund, Brussels, Dubai, 23 capital city and major regional airports in Australia, and the Danish Air Force.</p>
<p>On behalf of their oil company clients, 4Sight Consulting stated that, although the oil companies support the move away from fluorinated foams, they consider "Safety must be the primary imperative in transitioning to fluorine free fire-fighting foams" and that "The efficacy of replacement foams has yet to be adequately demonstrated."</p>	<p>The US Military Performance Specification (US Mil Spec) for aqueous film-forming foam (AFFF), for fresh and sea water, was amended on 7 April 2020 to remove the explicit requirement that foams must contain a fluorocarbon (PFAS) surfactant.</p>
<p>Willson Consulting provided a very substantial submission that included a large amount of information to explain why fluorine-free foams could not be considered to be acceptable or effective replacements for C6-PFAS foams. This included information from several major fire incidents where it was indicated that fluorine-free foams were not capable of equivalent fire performance to C6-PFAS foams, and how no large scale testing has been conducted to verify the performance of fluorine-free foams at the low test application rates used in small scale approval test fires. Connected to concerns about the effectiveness of F3 foams, are concerns about the possible impacts on the health safety of workers and others in the workplace - Wilson Consulting stated that one of the main reasons for making their submission was to inform the EPA about the "...inferior F3 performance findings with respect to major fires, which could endanger lives,...". Willson Consulting concluded that 'only when (or if) it can be clearly demonstrated on large scale fires and major incidents that alternative fluorine free foams can be equally effective at</p>	<p>The US Federal Aviation Administration Reauthorisation Act of 2018 will eliminate the requirement that US Mil Spec foams be required to be used at major US civilian airports by 5 October 2021.</p> <p>Caltex Australia (in their submission) indicate that their experience is that at present there is a replacement fluorine free foam available for shallow pool fire application and small tank fire application (&lt;20 m diameter) for refined products (e.g. gasoline, jet fuel, ethanol), but exceptions where fluorine free foam performance is yet to be established are for large tank fire application (&gt;20 m diameter) for refined products, and for crude oil.</p> <p>RefiningNZ have used fluorine free foams at their Marsden Point refinery for a number of years.</p> <p><b>Updates to proposal</b></p>

Summary of submitter comment	EPA Response and Update to Proposals
<p>the same application rates, expansion ratios and duration times as the existing C6-foams, should they be even considered for use on major hazards, to avoid compromising system design integrity and avoid placing life safety and critical infrastructure at unnecessarily increased danger, which otherwise is likely to be the case, with the attendant liabilities and extensive costs associated with such unacceptable situations’.</p>	<p>Considering the views of submitters and taking into account the information above, the EPA proposes, as above, that transition period for C6-PFAS foams, for both uncontained and contained uses, be five years with provision for contained uses following the transition period on a case-by-case basis, subject to a permission granted under section 95A of the HSNO Act.</p>
<p>Responsible Care NZ noted that “F3 remains largely unproven external to the clinical laboratory approach conditions alongside the incumbent AFFF products. Aqueous Film Forming is a critical component of a produced foam blanket to provide an extremely rapid knockdown for preservation of life, military and civilian aviation asset preservation, maintain foam integrity, minimising burn-back and breakdown, and adhesion to non-horizontal surfaces.”</p>	<p>These permissions will be assessed similarly to the exemptions currently granted under the South Australia and Queensland firefighting foam regulatory regimes, and are envisaged as being similar to the waiver mechanism contained in the Californian legislation currently under consideration – see paragraph 4.44.</p>
<p>Five submitters did not respond to the question (‘N/A’). However, of that number, three provided full text responses in the notes column indicating that they believe the effectiveness of fluorine free foams was unproven at this stage:</p> <ul style="list-style-type: none"> <li>○ NZ Airports noted that some of its “... members have already switched to fluorine free foams and are satisfied as to their effectiveness. Others feel that confirmation of the effectiveness of fluorine free foam via appropriate government assessment and approvals should be undertaken before industry is forced down the fluorine free route.”</li> <li>○ Methanex NZ stated that “We are still in the evaluation stage of alternative foams that are suitable for alcohol based fires.”</li> <li>○ Port Taranaki noted that “...the Port has yet to see a foam that is suitable for dealing with all the products it exchanges across its wharves (particularly methanol and hydrocarbons) in the same manner as the current alcohol-resistant foams.</li> </ul>	<p>Permissions will be granted for a set period (e.g. 2-3 years) but will be able to be renewed, subject to provision of evidence that the need to retain PFAS foam still exists and that there is no commercially available replacement that does not contain PFAS and that is capable of suppressing fire for that specific use, and provision of a detailed plan, with timelines, for the transition to firefighting foam that does not contain PFAS.</p> <p>C6-PFAS foam will still be able to be imported/manufactured and supplied for allowed contained uses but it will be required to meet the standard stipulated in the EU POPs Regulation 2019/1021 (previously contained in the EU REACH Regulation 2017/1000), that it must not contain greater than 0.025 mg/kg of PFOA or any of its salts or greater than 1 mg/kg of any individual PFOA-related compound or a combination of PFOA-related compounds.</p>

## Summary of submitter comment

**Persistent, toxic and/or bioaccumulative compounds**

The consultation document asked submitters to outline any concerns they may have about fluorine-free foams potentially containing other ecotoxic, and persistent and/or bioaccumulative compounds. Two implementation options were offered:

Option 1: amending the scope of the group standard by limiting the set of hazard classifications allowed under the group standard, or by including specific limits on particular ecotoxic properties in the product specification

Option 2: EPA assessment of assignment to the group standard by requiring importers to provide the full composition of products they assign to the group standard.

Ten submitters indicated they did have concerns regarding the potential environmental impact of fluorine-free foams.

Comments included that these foams, while not containing persistent and/or bioaccumulative components, can still have acute ecotoxic properties that can lead to short-term environmental damage; they can be used in larger quantities as they are not as efficient at extinguishing fires and this can lead to a higher environmental load (higher BOD); and there is sometimes uncertainty around what compounds they contain.

Only a few submitters expressed a view on which option they preferred and these favoured option 2. Reasons for this included that it was less prescriptive and more open to development as knowledge of replacement compounds improves; it is important for environmental regulators to have a way to assess the safety of proposed alternatives; and it provides greater confidence and certainty (to importers/manufacturers and therefore users) that a product has been correctly assigned to the group standard.

TNZ / Caltex Australia stated that the 'Queensland Foam Policy Operational Guidance Notes specifically identifies siloxanes as a bio-persistent compound that in the past has been used in some foam

## EPA Response and Update to Proposals

**Response and updates to proposals**

Taking into account the submissions, the EPA recommends proceeding with the proposed Option 2: EPA assessment of assignment to the group standard by requiring importers to provide the full composition of products they assign to the group standard.

This would enable the EPA to assess whether products contained any components of concern and which were not covered by the scope of the group standard. It would also enable the EPA to build up a record of the compositions of all firefighting foam products in New Zealand, which is not the case at present.

Option 1 would present difficulties. Firstly, if an amendment was made to the set of hazard classifications allowed under the scope of the group standard, this would affect all firefighting chemicals covered under this group standard and not just the firefighting foams that the amendments are targeted at. Secondly, as pointed out in the submission by FENZ, adjustment of the HSNO classifications will not adequately address persistence issues which are not specifically picked up in the HSNO classification criteria.

Including specific limits on particular ecotoxic properties, in addition to the classification criteria, could be problematic as it could unnecessarily restrict the range of products that could qualify under the group standard and be acceptable for certain uses. For example, while a very stringent ecotoxicity specification might be appropriate for firefighting foams where there is a high probability of it being used in the open environment (e.g. fire trucks), more allowance might be acceptable for a higher fire performance specification foam that is to be used in a specialist, fully contained industrial setting. However, the EPA may be able to develop some guidance in this area using sources such as the German Water Hazard classification (WGK) system, and the European studies mentioned in para 4.34. In addition, the Fire Fighting Foam Coalition indicated in their submission that they would be interested in providing

## Summary of submitter comment

products. In the Australian jurisdiction Operators are required to undertake their own due diligence to establish that the proposed foam to be used does not contain alternate bio-persistent compounds. This is an onerous obligation that has significant potential to be both inefficient and incomplete. It is appropriate that this obligation be placed upon manufacturers/suppliers as proposed in Schedule 1 Clauses 7 & 8.'

Fire Fighting Foam Coalition stated it 'has no reason to believe that current-day fluorine-free foams contain chemicals that are persistent, toxic or bioaccumulative. However, there is extensive research currently underway on the development of fluorine-free foams. In an effort to increase the performance of these foams, researchers are testing a wide variety of chemicals as replacements for fluorosurfactants. These have included siloxanes and other chemicals that could possibly have environmental impacts. Accordingly, it is important for environmental regulatory authorities to have a way to assess the safety of proposed alternatives. In general foam manufacturers are not opposed to providing the EPA with the full composition of a foam product as long as that information is kept fully confidential. At the same time, foam manufacturers would also support the inclusion in the group standard of a requirement for a base set of toxicological and environmental data.'

Fire and Emergency NZ stated that: 'Option 1 does not provide a sufficient level of assurance to either users or the public as to what is in these products, and risks a repeat of the PFOS issue in New Zealand. Adjustment of the HSNO classifications will not adequately address persistence issues which are [not] picked up in the HSNO thresholds.... We consider that Option 2 is insufficient and that the EPA should be required to carry out a determination on all products to be imported or manufactured including those currently being sold, not just receive the information from the importer. Only this way can user and public confidence in the use of firefighting chemicals be re-established. Past experience with PFAS foams has been that manufacturers' formulations have changed over time. The effect of this is that a product may have different constituents to the product of the same name that was originally approved under HSNO in the past. In the case of the PFAS content this

## EPA Response and Update to Proposals

additional input on required toxicological and environmental studies, as the amendments to the group standard are finalised.

FENZ suggested that 'Option 2 is insufficient and that the EPA should be required to carry out a determination on all products to be imported or manufactured, including those currently being sold, not just receive the information from the importer.' This does not fit within the group standard regulatory model which is, in effect, a pre-approval mechanism into which any substance which meets the scope of the group standard can be assigned.

FENZ also stated that 'past experience with PFAS foams has been that manufacturers' formulations have changed over time. The effect of this is that a product may have different constituents to the product of the same name that was originally approved under HSNO in the past. The compliance process needs to provide for ongoing assurance of products under HSNO as their formulations change, not just when the product is first imported or manufactured'.

This suggestion has been incorporated into clause 8 of the draft group standard.

Summary of submitter comment

EPA Response and Update to Proposals

has significant implications. The compliance process needs to provide for ongoing assurance of products under HSNO as their formulations change, not just when the product is first imported or manufactured.'

**Table 5. Cleaning of firefighting systems containing PFAS**

Summary of submitter comment	EPA Response and Update to Proposals
<p>The consultation document proposed a requirement to thoroughly clean all firefighting systems so as to remove, as far as reasonably practicable, any residual PFAS compounds when transitioning to a non-fluorinated firefighting foam product.</p> <p>It was indicated that the EPA would provide guidance on what was considered to be 'as far as reasonably practicable', and that this would take a risk-based approach. Alternatively, it was suggested that prescriptive clean-up concentration levels could be set in the group standard. Views were sought on these two options. Submitters were also asked to comment on the practicality of these cleaning requirements, in terms of the resources and costs involved.</p> <p>Seven submitters provided substantial comment on this matter, and while they all generally favoured the 'as far as reasonably practicable' approach supported by guidance rather than regulated clean-up concentrations, there were a range of views provided. These included:</p>	<p><b>Response and updates to proposals</b></p> <p>Taking into account the submissions, the EPA maintains the proposal to require thorough cleaning of all firefighting systems so as to remove, as far as reasonably practicable, any residual PFAS compounds when transitioning to a non-fluorinated firefighting foam product.</p> <p>Guidance will be provided by the EPA on expected maximum levels of residual PFAS and appropriate analytical methods for determining this. As a starting point, the following acceptable residual levels will be considered:</p> <p>Transition from any PFAS foam to fluorine-free foams; up to 50 mg/kg for total PFAS (measured as TOF), plus separate limits of 5 mg/kg for the sum of PFOS + PFHxS, and 5 mg/kg for PFOA</p> <p>Transition from C8-PFAS foam to C6-PFAS foam; up to 50 mg/kg for total PFAS <math>\geq</math>C7 (measured by TOPA C7-C14), plus separate limits of 5 mg/kg for the sum of PFOS + PFHxS and 5 mg/kg for PFOA</p>
<p>The absence of defined thresholds or allowable limits makes evaluating the proposals difficult:</p> <ul style="list-style-type: none"> <li>• The Fire Protection Association stated that: "The practicality of cleaning systems containing PFAS cannot be established unless the proposed allowable limits of fluorinated organic compounds is published. If the limits are extremely low, cleaning could entail dismantling of piping systems, etc., which could be extremely expensive."</li> <li>• Port Taranaki commented that 'the notion of simply providing a 'methodology' for decontamination is unsuitable without an acceptable threshold'; an endpoint is needed 'to address the risk that a more demanding regulatory endpoint will be developed some time in the future and the (cleaning) process is required to be repeated'; 'if the EPA's intent is to</li> </ul>	<p>These limits are similar to those in place under the Queensland Firefighting Foam Policy.</p> <p>However, as indicated, the guidance would take a risk-based approach. For example, in systems where there are components that are difficult to clean out (e.g. pipework), an allowance would be made for the estimated residual PFAS in these components to be apportioned across the total replacement volume of foam concentrate (when calculating the residual PFAS concentration), and there would not be an expectation that these components be replaced.</p> <p>Industry best practice guidelines, such as the FPAA Information Bulletin: Selection and use of firefighting foams (Version 3, May 2020), section 9.4, provides a good basis for such guidance.</p>

## Summary of submitter comment

## EPA Response and Update to Proposals

agree end-point thresholds, but on a site by site basis, we would be supportive of this’.

The standard ‘as far as reasonably practicable’ is inadequate to assess practicality, and needs to be clearly defined and/or supported by guidance:

- The Fire Fighting Foam Coalition, while endorsing the as far as reasonably practicable’ standard, urged the EPA to “...outline a set of basic procedures to be followed by users rather than set a numerical value that must be met.”
- Willson Consulting advised that guidance should ideally encompass a preferred or recommended clean-out procedure with acceptable levels of residual PFAS in the final washwater, .... once verified for a ‘typical’ system this procedure could then be rigorously followed and documented for other similar systems.
- FENZ stated that ‘The guidance on cleaning requirements should be supported by a robust risk analysis so as to ensure that residual PFAS levels are realistic and practical, and cleaning processes are efficient and avoid creation of unnecessary wastes’.

The cost of cleaning firefighting systems is potentially prohibitive:

- Port Taranaki notes that “The disposal of well over 60,000 L of foam products, in addition to any contaminated washwater from decontamination will pose a significant cost burden to the Port and its customers. Also, “A decontamination exercise involving firefighting tugs and the major firefighting system on the wharfline at the Newton King Tank Terminal would require the significant part of the Port to be closed and thus render the key Port asset to become inoperable for an

Summary of submitter comment

EPA Response and Update to Proposals

extended period of time. The inability to operate the fuel and methanol operations during this time would have major impacts on the Port, its customers and the surrounding economy that relies on this critical asset.”

- FENZ is concerned about the total costs, noting that the cost of cleaning one of their vehicles “...was close to \$100,000 for a single vehicle that has reached the end of its working life. If this proposal is accepted into the standard, then Fire and Emergency will need to repeat the exercise on at least two further appliances.”

Concerns that the EPA has assumed that foams can be flushed out of existing fire-fighting systems and replaced with any new product permitted under the group standard.

- Tyco New Zealand Ltd (T/A Wormald) submitted that “...The document is silent on the engineering associated with changing such systems and although not mentioned it reads like the EPA has assumed that any new replacement foam concentrate will be a “drop in replacement” for the existing. This is not necessarily the case.”

Table 6. Management and disposal of wastes

Summary of submitter comment	EPA Response and Update to Proposals
<p><b>Disposal by an approved method</b></p> <p>It was also proposed to require that all firefighting foam products containing PFAS compounds and all PFAS containing wastes (e.g. firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS compounds) be safely disposed of by an approved method.</p> <p>Submitters focused on the potentially high costs of treating and disposing of fluorinated wastes, the current lack of availability of suitable disposal facilities in New Zealand (including for low level contaminated wastes) requiring the export of wastes for disposal, the volume of wastes including low concentration wastes to be disposed of, and the availability and shortage of specialist contractors to undertake the clean-out and disposal work which can mean extended periods before contractors can start on a given site. Some submitters expressed concerns over whether this could be accomplished within a two year transition period.</p> <p>The industry association Fire Fighting Foam Coalition advised that their best practice guidance recommends that PFAS foam concentrate be disposed of by high-temperature incineration and that firewater run-off also be disposed of by high-temperature incineration or another suitable method. They were therefore generally supportive of the disposal options proposed. The FFFC did, however, express strong concerns about the cost and impact to users of having to export large quantities of foam for destruction and replace that foam and possibly equipment all within a 2 to 5-year period. They also indicated concerns about the potential environmental impact of a mandated transition if it is not carried out correctly.</p> <p>4Sight Consulting for the oil companies indicated support for the disposal proposals and considered that incineration is the only option for the destruction of these compounds. They also noted that there are no</p>	<p><b>Response and updates to proposals</b></p> <p>Taking into account the submissions, the EPA maintains the proposal that all firefighting foam products containing PFAS compounds and all PFAS containing wastes (e.g. firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS compounds) be safely disposed of by an approved method.</p> <p>The group standard will contain direction on the approved disposal methods and this will be supported by guidance material. As an update to the original proposal, threshold concentrations for disposal options are now included in the revised group standard.</p> <p>The approved methods are those accepted in the Basel Convention General Technical Guidelines on Persistent Organic Pollutant Wastes. The most common of these methods is high-temperature incineration, which is the method recommended in industry guidance (FFFC, FPAA) and by foam manufacturers. The group standard provides for, and does not preclude, these methods being undertaken in New Zealand. Any facility established in New Zealand would, of course, need to meet other regulatory and consenting requirements.</p> <p>The group standard allows for low PFAS concentration liquid wastes to be disposed of to trade waste as long as this is in accordance with the applicable local trade waste bylaw.</p> <p>Similarly, the draft group standard now contains a provision to allow the disposal of low PFAS concentration solid wastes to landfill if they meet the following criteria:</p> <ul style="list-style-type: none"> <li>a. for C8-foam wastes: <ul style="list-style-type: none"> <li>i. they meet the landfill acceptance criteria contained in the HEPA PFAS National Environmental Management Plan (see paras 4.12-4.13); and</li> </ul> </li> </ul>

Summary of submitter comment

EPA Response and Update to Proposals

incineration facilities in New Zealand thus requiring export which came with a significant cost burden.

NZDF noted that that there is a need to define a disposal standard for firewater, wastewater, run-off, foam, and other wastes contaminated with PFAS, and "...the proposal creates significant potential for very large volumes of water containing very low concentrations of PFAS to require treatment and disposal. This is likely to be cost prohibitive to many organisations."

Fire Engineering Solutions wanted "Recognition by EPA that 1. It is wrong to export NZ PFAS to other countries; 2. Encouragement, subsidy even, for cement kilns to be converted to destroy PFAS."

- ii. the total concentration for PFOA, its salts and PFOA-related compounds does not exceed 50 mg/kg (determined as TOF).
- b. for C6 fluorotelomer foam wastes:
  - i. they meet applicable (local) landfill acceptance criteria; and
  - ii. the leachable concentration for PFAS does not exceed 0.05 mg/kg (determined as TOF) and the total concentration for PFAS does not exceed 50 mg/kg (determined as TOF).

In both cases above, acceptance at landfill will still be the prerogative of the local landfill operator.

The HEPA landfill acceptance criteria cannot be used for the C6-foam wastes since they only cover PFOS/PFHxS and PFOA.

Table 7. Draft Group Standard

Summary of submitter comment	EPA Response to Proposals
<p>Submitters were asked for additional comments on the draft group standard attached to the consultation document. Eight submissions were received focusing on the following schedules and clauses:</p> <p><b>Schedule 1</b></p> <ul style="list-style-type: none"> <li>• <b>Clause 8 requirement to display certification of fluorine content of firefighting foams</b> <ul style="list-style-type: none"> <li>○ Port Taranaki noted that “The expectations need to be clear as to what level of detail is required”.</li> <li>○ NZ Airports also submitted that more clarity is required as to what is expected of manufacturers, and that the “EPA should ... publish a list of foams that it considers to be fluorine free” rather than rely on statements from the manufacturer.</li> <li>○ Air New Zealand noted that “We are also concerned that EPA has not provided advice on the concentration of fluorine in a foam that classifies as fluorine free. Material safety data sheets are generally silent or vague on fluorine content, even in PFAS based foams i.e. what is fluorine free?”</li> <li>○ FENZ questioned the effectiveness of this requirement as proposed. They considered the issue is not the presence of fluorine per se in foam but rather persistent fluorine containing compounds such as PFAS. They also considered that any such stipulation would need to specify a recognised analytical standard and a threshold level to be enforceable.</li> </ul> </li> </ul>	<p><b>Certification of fluorine content</b></p> <p>This requirement mirrors a similar one contained in the South Australia legislative policy on firefighting foams. Guidance issued by EPA South Australia indicates that certification is required of the fluorine content, not the fluorinated organic compound, or PFAS, content.</p> <p>Similarly, the requirement in the US Mil Spec (MIL-PRF-24385F(SH)) is for the total fluorine content to be determined, and the test procedure used is also required to be provided.</p> <p>It is expected that the total fluorine content can be determined by combustion ion chromatography (CIC) methods, which are reported as having limits of reporting (LOR) of 0.05 mg fluoride/kg, or lower.</p> <p>The limits provided above for cleaning when transitioning from a PFAS foam to fluorine-free foams may be appropriate also for product certification, namely:</p> <ul style="list-style-type: none"> <li>• up to 50 mg/kg for total PFAS (measured as TOF), plus separate limits of 5 mg/kg for the sum of PFOS + PFHxS, and 5 mg/kg for PFOA</li> </ul> <p>The EPA would not expect to maintain a list of ‘approved’ fluorine-free foam products.</p>

Summary of submitter comment

EPA Response to Proposals

- **Clause 9 Requirement to contain firefighting foams**

- Port Taranaki and NZ Airports are both of the view that is a Resource Management Act matter, and "...sits outside the Group Standard remit".
- On behalf of their oil company clients, 4Sight Consulting supports the 'reasonable care to contain requirement', but notes that because Clause 9 is subject to Schedule 2, "The definitions appear to set a zero-tolerance threshold for foam release to the environment when the intent of the provision is actually to allow ongoing use in terminal scenarios."

**Requirement to contain firefighting foams**

The purpose of the HSNO Act is to protect the environment, and the health and safety of people and communities, by preventing or managing the adverse effects of hazardous substances (and new organisms). To achieve this, the entire lifecycle of a hazardous substance is assessed, including in relation to the intended uses of the substance throughout the life cycle of the substance. (life cycle, is defined in the Act as meaning 'the time for which the substance is in existence from (and including) its manufacture or importation to its disposal').

Use of firefighting foam in a way that it may enter the environment, and the management of any adverse effects that might arise, is therefore definitely within the remit of the HSNO Act and therefore the group standard. For example, under section 77B of the Act, the EPA can set environmental exposure limits, as controls on the use of a substance, which set a limit on the concentration of a substance in the environment.

**Schedule 2**

- **Clause 6 Requirements relating to transitioning firefighting systems from PFAS firefighting foams to fluorine free firefighting foams**

- With regards to clause 6(1)(a), NZ Airports states that "...as far as reasonably practicable' needs to be clearly defined ..." because this raises the question of "... what level of decontamination is reasonably practicable?"
- Port Taranaki supports this, noting that "although thresholds have been determined in some jurisdictions for PFOS, PFOA and PFHxS, there are not threshold concentrations available... for a number of other PFAS compounds to compare against."

**Requirements relating to transitioning firefighting systems from PFAS firefighting foams to fluorine free firefighting foams**

This has been addressed above in the section 'Cleaning of firefighting systems containing PFAS'.

## Summary of submitter comment

- **Clause 7 Disposal of PFAS firefighting foams and PFAS firefighting foam waste products**
  - Caltex Australia Petroleum Pty Ltd recommended that the EPA "...provide further content ... including a clear statement of relevant NZ legislation required to be complied with in transporting PFAS waste concentrates & solutions both domestically and internationally to point of destruction."

## EPA Response to Proposals

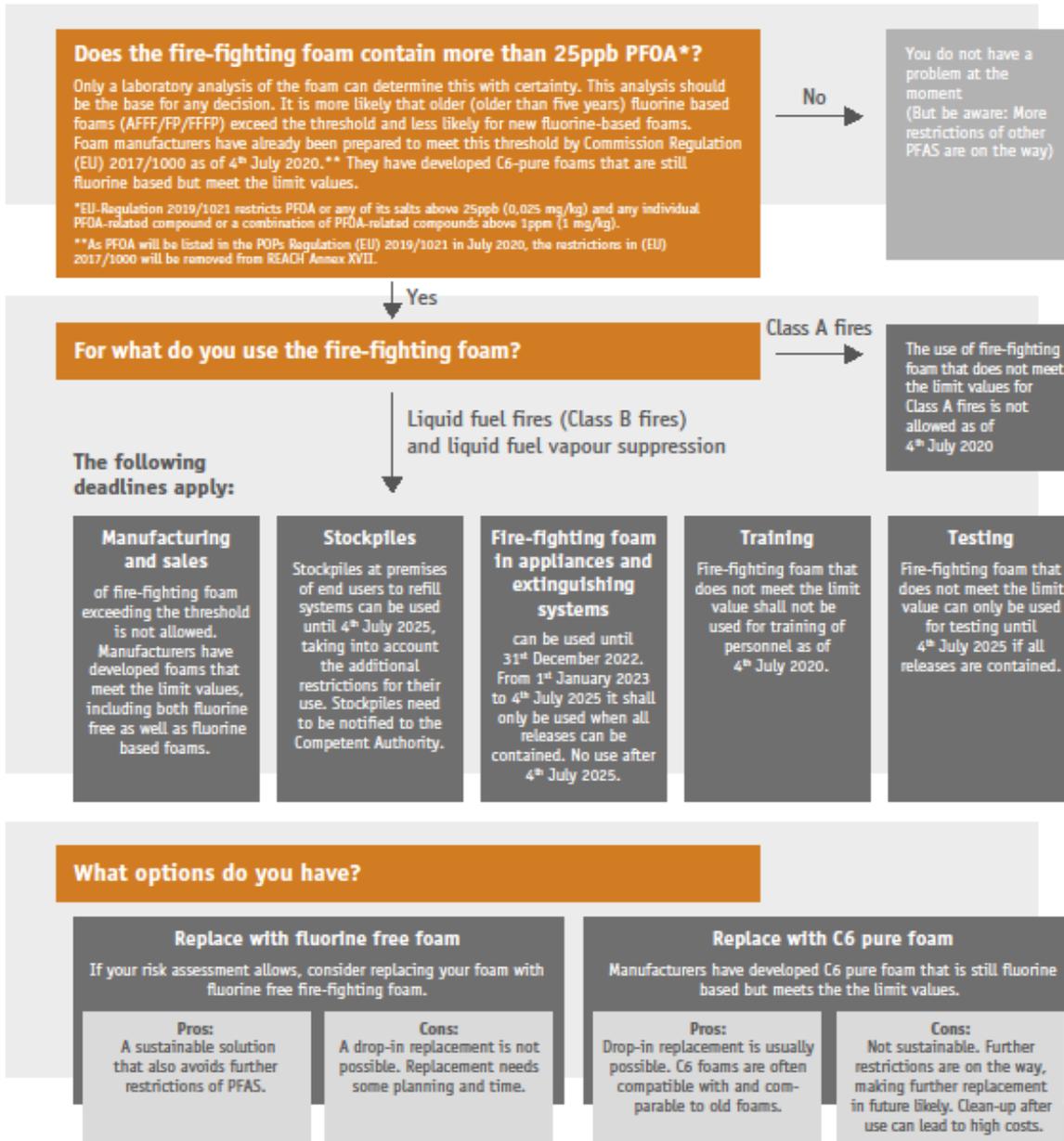
**Disposal of PFAS firefighting foams and PFAS firefighting foam waste products**

The information recommended by Caltex Australia relating to the transport of PFAS wastes, including when exported, will be covered in guidance material. Other legislation, such as the Land Transport Rules and Maritime Rule for dangerous goods apply in their own right without need for reference in the group standard. The export of hazardous waste requires a permit from the EPA under the Imports and Exports (Restrictions) Prohibition Order (No 2). Information on this process is provided on the EPA's website.

# 10. Appendix 3: EU POPs Regulation of PFOA

## The consequences of the EU restriction of PFOA in fire-fighting foam in 2020

What does the listing of PFOA in Part A of Annex I to EU-Regulation 2019/1021 on persistent organic pollutants mean for firefighters?



Status as of 1<sup>st</sup> June 2020  
 This information is an aid for users and is not health-related information. It may, according to the best of our knowledge, however, errors or omissions of the regulations cannot be excluded.



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**German Industrial Fire Protection Association**  
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More information:  
 Peltzer (2019): Fluorhaltige Schaummittel – ein Paradigmenwechsel.  
 In: WFD-Info 11/2019