



UNITED FIREFIGHTERS UNION OF AUSTRALIA

SUBMISSION

TO THE
PFAS SUB-COMMITTEE OF THE JOINT
STANDING COMMITTEE
ON FOREIGN AFFAIRS, DEFENCE AND TRADE

**INQUIRY INTO PFAS REMEDIATION IN AND
AROUND DEFENCE BASES**

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1.0 BACKGROUND

- 1.1 The United Firefighters Union of Australia (**UFUA**) is a registered federal union for career firefighters and non-uniform fire service personnel in Australia.
- 1.2 The UFUA has eight branches in Tasmania, South Australia, Victoria, ACT, New South Wales, Western Australia, Queensland and an Aviation sector branch (**the Branches**). Each Branch has very high level of union membership, with the majority of Branches averaging around 95 to 100 percent membership of the relevant workforce.
- 1.3 In addition to representing state/territory fire service employees, the Branches represent also career firefighters that are stationed at defence bases within their state/territory. The federal Department of Defence contracts out fire and rescue on defence bases to a private contractor that employs the career firefighters. Those defence career firefighters are currently employed by Broadspectrum.
- 1.4 The UFUA made a submission to the Inquiry into the management of PFAS contamination in and around Defence bases on 3 July 2018 (**the 2018 UFUA submission**). There have been significant developments in relation to PFAS in the fire services since the 2018 UFUA submission to the Inquiry, most notably the UFUA attending the United Nations and advocating for, and achieving, a global elimination on PFOA.
- 1.5 In Australia, there has been significant progress in the area of testing and remediation. This progress that has been made in recent years in the fire service is a direct result of the UFUA focusing on finding tangible solutions to the problem of PFAS contamination. This strategy shows exactly what can be achieved when employers work in partnership with trade unions, with the common goal of enhanced health and safety of employees/members and the community.
- 1.6 The UFUA respectfully guides the PFAS Sub-Committee towards the following parts of this submission, outlining key developments:

3.0 United Nations Global Elimination on PFOA
4.0 UFUA National Approach: Union PFAS Policy
5.0 Update on MFB/Macquarie University PFAS Blood Study
6.0 Update on MFB Decontamination Program
7.0 Fire Station *Dust Safe* Initiative
8.0 Increased Community Awareness
9.0 Updated Recommendations

2.0 UNDERSTANDING THE FIREFIGHTING PROFESSION AND FIREFIGHTER EXPOSURES

Understanding the firefighting profession

- 2.1 As detailed in the 2018 UFUA submission, state and territory governments in Australia provide a range of emergency management activities through fire service organisations, including prevention/mitigation, preparedness, response and recovery.
- 2.2 The role of the Australian fire agencies includes:
- developing building fire safety codes and inspecting fire safety equipment and practices
 - training and educating the community to achieve community awareness and behavioral change in relation to fire and road safety issues
 - assisting individuals and communities to prepare for bushfires and other hazards
 - responding to structure, bush, vehicle and other fires
 - providing rural land management advice on the role and use of fire
 - providing road crash rescue and other rescue services
 - managing hazardous material incidents
 - chemical, biological and radiological incidents
 - emergency medical response with firefighters co responding with ambulance to manage unconscious, non-breathing and pulseless patients to provide life-saving emergency care. These circumstances include but are not limited to heart attacks, suicides, SIDS and overdoses
 - administering legislation relating to fire safety, hazardous materials facilities and hazard mitigation
 - investigating fire cause and origin
 - wide ranging industry research activities; and
 - a number of specialist rescue capabilities, including Urban Search and Rescue, swift water rescue, high rise and trench rescue
- 2.3 Australian career firefighters must undertake extensive training via an initial recruit course of approximately 17 weeks, followed by a probationary period of 12 months. The time period necessary for the recruit course varies from fire service to fire service. This extensive training includes elements of theoretical and practical learning, including hot fire training on the fire ground.
- 2.4 Upon completion of the relevant Recruit course, successful candidates are deployed to fire stations for operational experience where they perform emergency response duties under supervision. That is, the successful candidates will both engage in training (on and off station) and also respond to emergency incidents and perform relevant tasks and duties appropriate to, and expected of, their level/rank. Such emergency incidents include but are not limited to, responding to emergencies such as chemical spills, structure fires, car fires, building collapse and non-structure fires. Firefighters also perform a wide range of fire safety and public awareness initiatives including structured programs delivered to primary school children, commonly referred to as “Fire Ed” or “Community Education”.

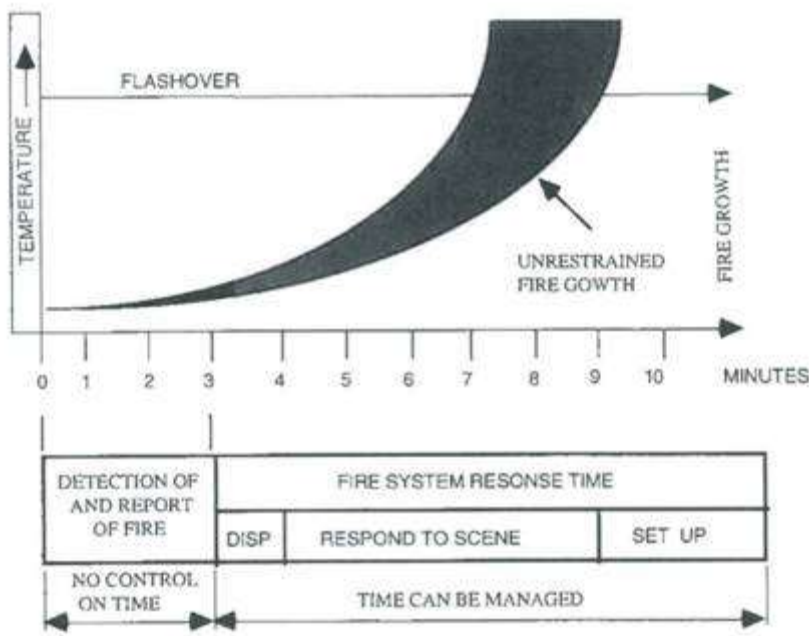
- 2.5 Similar to that of a qualified trade (such as plumbing or electrical), after approximately four years, and upon satisfactory completion of the required theoretical and practical training and development, a career firefighter obtains the rank of Qualified Firefighter¹. In addition to the necessary modules for achieving this national standard, professional firefighters also undertake additional required and specialist training in accordance with relevant agency-specific requirements. The requirements vary slightly from fire service to fire service.
- 2.6 Throughout their service, and depending on the practices and policies of the agencies, professional career firefighters maintain their skills and competencies through specialised training. Historically in Australia, career firefighters (and their Instructors/trainers) were exposed to contaminated water that is not fit for purpose i.e. training water that was not potable. Just two years ago, at the time of writing the 2018 UFUA submission, the UFUA understood this practice to continue in some Australian fire agencies.
- 2.7 **In understanding the life and legacy of PFAS, not using potable water for training continued the exposure of firefighters to PFAS-containing firefighting foams and PFAS contamination.** Use of this legacy foam means that, even where a fire service has discontinued use of PFAS-containing firefighting foam, contamination of appliances (trucks), stations/work locations and training facilities is still present and can still harm firefighters, including newer generations who have not been directly exposed to foams.

Understanding firefighter exposures

- 2.8 To maximise prevention of loss of life and minimise damage to property, fire services mandate strict and quick response by applying standards for their firefighters to respond to emergencies. The mandating of response time standards, and adherence to such standards, is crucial to maximizing the potential for saving life.
- 2.9 Underpinning response time standards is established scientific research that dictates that a fire must be suppressed within five to ten minutes of ignition. The physical characteristics of fire cause the temperature in a building to rise extremely rapidly, and a sudden and dramatic simultaneous ignition of most combustible materials and gases is class flashover. When flashover occurs depends on the building construction and furnishing materials and usage. However, once flashover occurs, fire spreads quickly. Therefore, in order to maximise the potential of saving life and minimising damage to property, firefighters must enter the building to commence suppression activities to avoid flashover.
- 2.10 The below graph demonstrates that it is simply not an option for a firefighter to delay entering a structure to commence rescue operations and

¹ This rank is referred to in as “Certificate III in Public Safety (Firefighting in Emergency Operations)”.

suppression activities. This standard has previously been recognised by the 2011 Senate Inquiry that examined presumptive cancer for professional firefighters.²



- 2.11 Firefighting is an inherently dangerous profession. Using a structure (building) fire as an example, it has previously been found that firefighters entering a standard structure fire, such as a house fire, are exposed to more than 70,000 chemicals.³ When burning, and when burning together, these chemicals are very toxic to the firefighter. Indeed, there has been an increased use of plastics and chemicals in modern construction products, furnishings and electronics which has resulted in elevated exposures to firefighters.
- 2.12 Some of the known chemicals in residential fires are PAHs, hydrocarbons, formaldehyde, Benzene, arsenic, asbestos, vinyl chloride, soot, tars and oils, metals (lead, barium, cadmium, chromium, nickel, zinc) and arsenic compounds. Firefighters historically have been, and in many cases continue to be, exposed to PFAS foams in fire suppression and also training.
- 2.13 Firefighters are exposed to carcinogens, both known and unknown, at fires including PFAS. At any structure fire, a firefighter takes every precaution to

² Inquiry by the Australian Senate Education, Employment and Workplace Relations Legislation Committee Inquiry into the Safety, Rehabilitation and Compensation Amendment (Fair Protection for Firefighters) Bill 2011.

³ This figure is based on findings from the study, City of New York Mount Sinai School of Medicine (1998) "Occupational Cancer in New York City Firefighters". In this study, it was found that New York firefighters were exposed to more than 70,000 chemicals at a standard structure fire. These chemicals derive from commonly-used building and furnishing products and, when burning and when burning together, were extremely toxic to the firefighter.

limit their exposure to carcinogens. They don Personal Protective Equipment (**PPE**), including Personal Protective Clothing (**PPC**)⁴ and full Breathing Apparatus.

- 2.14 However, despite the protection that PPE provides the firefighter against heat and flame, the firefighter cannot be fully protected due to the “breathability” of firefighter uniform. Firefighter uniform protects the firefighter against significant heat and flame however it must breathe to release metabolic heat buildup. Not releasing metabolic heat buildup would result in organ failure. Therefore, and contrary to popular belief that firefighter exposures resulting in cancer are a result of breathing in smoke, the numerous studies in relation to occupational cancer and firefighting demonstrate the result of dermal absorption of toxins and carcinogens.
- 2.15 There is a wealth of internationally accepted research that demonstrates the scientific nexus between firefighting and increased incidence of specific cancers. Firefighting is one of the most studied occupations in relation to occupational cancer and there is now a wealth of scientific evidence that demonstrates the link between firefighting and specific cancers, including studies of Australian firefighters.⁵
- 2.16 Since 2000, North America has progressively introduced presumptive legislation to enable firefighters to access compensation and assistance for up to 17 cancers that are presumed to be occupational diseases. The presumptive legislation varies from state to state and, in the case of Canada, province to province however the one common factor is the acceptance of the scientific research that underpins and supports presumptive legislation for career firefighters.
- 2.17 **Since the 2018 UFUA submission, two final states (being New South Wales and Victoria) passed presumptive legislation for firefighters. This makes Australia the only country outside of North America with presumptive legislation for career firefighters, coast to coast.**
- 2.18 In 2011, the UFUA launched a national campaign to ensure Australian firefighters were afforded the protection of presumptive legislation. After a comprehensive Senate Inquiry, the Australian Federal Parliament unanimously passed and introduced presumptive legislation⁶ recognising 12 occupational cancers for federal career firefighters employed by Airservices Australia and firefighters employed by Australian Capital Territory Fire and Rescue.

⁴ Personal protective clothing for a structure fire includes PBI gold turnout gear, flash hood, helmet, gloves and boots.

⁵ One such example of an Australian study is the “Australian Firefighters’ Health Study”, Monash University Centre for Occupational and Environmental Health (2014).

⁶ Safety, Rehabilitation and Compensation Act 1988 (Cth), which incorporates amendments from the Safety, Rehabilitation and Compensation Amendment (Fair Protection for Firefighters) Bill 2011 that passed the Australian Senate on 24 November 2011.

- 2.19 This Act presumes the following cancers are occupational cancers for firefighters with a corresponding qualification period of service as a career firefighter:

| | <i>Disease</i> | <i>Qualifying period</i> |
|----|---|--|
| 1 | <i>Primary site brain cancer</i> | <i>5 years</i> |
| 2 | <i>Primary site bladder cancer</i> | <i>15 years</i> |
| 3 | <i>Primary site kidney cancer</i> | <i>15 years</i> |
| 4 | <i>Primary non-Hodgkins lymphoma</i> | <i>15 years</i> |
| 5 | <i>Primary leukemia</i> | <i>5 years</i> |
| 6 | <i>Primary site breast cancer</i> | <i>10 years</i> |
| 7 | <i>Primary site testicular cancer</i> | <i>10 years</i> |
| 8 | <i>Multiple myeloma</i> | <i>15 years</i> |
| 9 | <i>Primary site prostate cancer</i> | <i>15 years</i> |
| 10 | <i>Primary site ureter cancer</i> | <i>15 years</i> |
| 11 | <i>Primary site colorectal cancer</i> | <i>15 years</i> |
| 12 | <i>Primary site oesophageal cancer</i> | <i>25 years</i> |
| 13 | <i>A cancer of a kind prescribed for this table</i> | <i>The period prescribed for such a cancer</i> |

- 2.20 This Act was passed following the Senate Standing Committees on Education, Employment and Workplace Relations Legislation Committee inquiring into the “Fair Protection for Firefighters” Bill. The Committee undertook a robust 6-month inquiry and in doing so performed the due diligence for the application of presumptive legislation for Australian firefighters.
- 2.21 The Committee was provided with the IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 98. Painting, Firefighting, and Shift work, Lyon France 2010 which represented the views and expert opinions of an IARC Monographs Working Group on the Evaluation of Carcinogens, Risks to Humans which met in Lyon 2-9 October 2007, and determined occupational exposure as a firefighter is possibly carcinogenic to humans (Group 2B). **While PFOS was not specifically raised in this Senate Inquiry, it should be noted that IARC has also classified PFOA as possibly carcinogenic to humans (Group 2B).**

- 2.22 The resulting Senate Education, Employment and Workplace Relations Legislation Committee Final Report⁷ key findings included (and referenced by paragraph numbering):

2.15 The committee is confident in the quality of the studies it has seen and considers them to be compelling evidence in support of this Bill.

2.17 The committee also notes that the body of scientific evidence has expanded since presumptive legislation was first introduced to cover five cancers in Canada in 2002. Researchers have since demonstrated that firefighters are at risk of a greater range of occupational cancers.

2.21 In the case of firefighters, the impact of the healthy worker effect means that their health and fitness levels, which are markedly higher on average than those of the general population, may protect them from diseases—including cancer—to a certain extent. In turn this suggests that were firefighters' health and fitness levels the same as those of the rest of the community, given their occupational exposure to carcinogens, they would suffer from cancers at a far greater rate than is currently the case.

2.24 The effect has been observed where specific cancers, such as, for example, colon cancer, are concerned. Evidence exists suggesting that physical fitness and activity should protect individuals from certain types of cancer. This does not appear to be the case for firefighters:

2.51 The committee understands that firefighters work in uncontrolled environments which make it necessary for their protective gear to breathe, therefore leaving them vulnerable to toxins and carcinogens. On the weight of considerable evidence supplied to the committee supporting a likely causal link between firefighting and certain cancers, as well as the understanding that claims for compensation would be legally contestable, the committee is confident that rebuttable presumption is a solid—and fair—foundation for workers' compensation policy for career firefighters.

4.39 The committee has carefully examined the large amount of evidence with which it has been presented. Study after study has pointed to a higher risk of cancer for firefighters than the general population. Science has confirmed what firefighters suspected for decades: that a disproportionate number of them in the prime of their lives are brought down with illnesses usually reserved for the old and the infirm.

4.40 The committee recognises that cancer is an illness that touches many fit, healthy people in the non-firefighter population as well. In many cases it is unpredictable and incomprehensible, due to genetics or factors we do not yet understand. But when the science tells us that

⁷ Senate Education, Employment and Workplace Relations Legislation Committee Safety, Rehabilitation and Compensation Amendment (Fair Protection for Firefighters) Bill 2011 [Provisions], September 2011.

a particular group of people who are routinely exposed through their service to the community to known carcinogens are at higher risk of developing certain types of cancer, then the response becomes clear.

2.23 Following this Inquiry, the UFUA further its education campaign, educating governments on the need and scientific basis for presumptive legislation. Since July 2019, every state and territory in Australia has presumptive legislation for firefighters. The various state and territory legislation was passed in the following order:

- In September 2013 the Tasmania Government enacted presumptive legislation modeled on the Federal Legislation for career firefighters and included the protection for volunteer firefighters who can demonstrate 150 exposures to a fire scene.
- In October 2013 the Western Australian Government enacted presumptive legislation modeled on the Federal Legislation for career firefighters.
- In March 2014 the South Australian Government enacted presumptive legislation modeled on the Federal Legislation for career firefighters and did not cover volunteer firefighters. Later that year the legislation was amended to include volunteer firefighters. The amendment did not follow the Tasmanian model as did not include minimum exposure requirements.
- In 2015 the Northern Territory enacts presumptive legislation modeled on the Federal Legislation for career firefighters with exposure provisions for volunteer firefighters modeled on the Tasmania legislation.
- In 2015 the Queensland Government enacted presumptive legislation modeled on the Federal Legislation for career firefighters and created an administrative committee to consider volunteer claims.
- In 2018 the NSW Government enacted presumptive legislation for career and volunteer firefighters who were engaged as a firefighter (either employed or as a volunteer) for the qualifying period.
- In 2019 the Victorian Government enacted presumptive legislation modeled on the Federal Legislation for career firefighters and created an administrative committee for volunteers modeled on the Queensland legislation.

2.24 The 2018 UFUA submission also detailed major Australian and international studies and their conclusive, scientific findings in relation to the profession and occupational cancer.⁸

PFAS exposures in the fire services

2.25 As detailed in the 2018 UFUA submission, state and territory fire and rescue service career firefighters, Aviation firefighters and Defence firefighters are all exposed to firefighting foam during the course of their firefighting duties and while training.

⁸ Refer to paragraphs 2.13 to 2.19 of the 2018 UFUA Submission.

- 2.26 Historically, fire services used firefighting foams containing perfluorooctane sulfonate (PFOS) and/or perfluorooctanoic acid (PFOA), known as perfluorinated chemicals (PFCs) or perfluoroalkyl substances (PFAS).
- 2.27 Just two years ago, at the date of writing the 2018 UFUA submission, some Australian fire services, (state, aviation and defence) continued to expose their firefighters with the use of PFAS-containing firefighting foams.
- 2.28 Foam is used to cool and coat the fire to prevent its contact with oxygen, resulting in suppression of the combustion. There are different classes of foam for different types of fire and therefore different methods of suppression. It is used in wildfires, to extinguish flammable liquid fires, coal fires, and is the primary method of suppression in aviation fires.
- 2.29 PFOS is a known fire suppressant. Since the 1950s, various types of foams have been in use containing PFOS as the active ingredient with other substances including PFOA and PFAS. From the 1980s, 3M-manufactured foams were predominately in use. These 3M-manufactured foams were supposed to be phased out in 2002.
- 2.30 Despite understanding the risks of PFOS, fire agencies continued using banned foams for training and for firefighting purposes, and others that eventually changed to safer foams continued to use the PFAS foam that they still had in stock.
- 2.31 These PFAS foams were, and in some cases continue to be, used despite the repeated warnings and notifications of the risk to human health. A few examples are:
- In September 6, 2000, the United State Environmental Protection Agency (USEPA) formally notified the Australian Federal Government including Charles Auer from Worksafe Australia of PFOS being a *"persistent, bioaccumulative and toxic chemical"*. In this correspondence USEPA advised that PFOS *"appears to combine Persistence, Bioaccumulation and Toxicity properties to an extraordinary degree."*
 - A USEPA press release dated 19 May 2000, stated PFOS & PFOA *"have a strong tendency to accumulate in human and animal tissue and could potentially pose a risk to human health and the environment in the long term."*
 - In 2000, 3M - the US manufacturer of PFOS containing firefighting foam - ceased production of 3M Lightwater. This is the manufacturer who was financially benefiting from the protection of the foam determining it would no longer produce the foam. It is of note that subsequently in evidence to a 2016 Australian Senate Inquiry on Contamination of Australia's Defence Force and other Commonwealth State and Territory sites in Australia, 3M's evidence included that the C8 Scientific Panel found *"probable links to high cholesterol, ulcerative colitis, thyroid disease, testicular cancer, kidney cancer, and pregnancy induced hypertension"*.
 - After this information was received, the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) sent all Australian Fire Services and major chemical facilities, annual safety bulletins regarding

the phase out of PFAS firefighting foam. However, exemptions were granted for fire services to deplete their stocks in actual fire emergencies. This exemption did not include firefighter training, however vast quantities of these stocks were used for that exact purpose.

- **In 2009 PFOS was added to Annex B of the Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention). Australia is a party to the Stockholm Convention but has not ratified this addition. Further, significant developments were made at the United Nations in 2019 and are detailed in Part 3 below,**

- 2.32 In 2013, Airservices Australia commissioned an independent report into the use of foams and subsequently determined that Solberg RF6 met the standard. However, in October 2017 when appearing before a Senate Estimates Committee, Airservices Australia admitted to the continued use today of PFAS foams in Darwin and Townsville.⁹
- 2.33 In Victoria, the Metropolitan Fire Brigade (MFB) made a decision to replace existing firefighting foam with fluorine free firefighting foam out of concern over firefighter health and environmental issues. Independent scientific studies into PFAS were consistently identifying links to various cancers and other health concerns. From the early 1980s to 2014, MFB firefighters have had high levels of exposure to 3M AFFF Light Water B Class foam in both training and emergency response.
- 2.34 During 2011, MFB had extensively trialled and evaluated various fluorine free firefighting foam in hot fire, flammable liquid, B Class fire scenarios. The fluorine free foam consistently performed well in extinguishing B Class fires and would provide MFB firefighters with a 'safer' alternative extinguishing medium to utilise in emergencies.
- The recent test results from the October 2017 Large Atmospheric Storage Tank Fires (LASTFIRE) Foam Summit conference held in conjunction with the International Industrial Fire Chiefs Conference in Budapest, confirmed that fluorine free B Class foam is just as effective as a firefighting medium for B Class fires, without the inherent long-term health and environmental risks.
 - By 2014, all MFB firefighting appliances had been converted to only carry fluorine free B Class foam in their foam tanks. Most states apart from WA have changed over to fluorine free B Class foam concentrate.
- 2.35 In February 2015, the Victorian Parliament established a parliamentary inquiry into the CFA fire training ground at Fiskville. This was prompted by media reports and concerns amongst firefighters about a cancer cluster and other health related concerns regarding trainees and staff who had attended the Fiskville Training Ground.

⁹ Australian Senate Rural and Regional Affairs and Transport Legislation Committee Estimates hearing Monday 23 October 2017, page 137, 138.

- 2.36 The submissions, documents and subsequent environmental testing in and around CFA Fiskville, led to the CFA board permanently shutting down the Fiskville training ground. High levels of PFAS contamination was a major consideration in this decision. Despite the CFA Management knowing the site and water sources being used for training were contaminated, including with PFAS for many years, firefighters and staff were not notified and continued to use the water and be exposed to the contamination.
- In 2010 Airservices Australia notified the CFA it would no longer make a planned \$12 million investment into Fiskville partly because of the PFAS contamination.
 - The Inquiry report records the contamination in neighbouring farms and waterways and high levels of PFAS being identified in the blood of community members as well as firefighters.
- 2.37 The Victoria Parliament Inquiry into the CFA Fiskville Training ground report¹⁰ was damning of the CFA management who knowingly continued to expose firefighters, employees, residents and children who lived on site and attended the school on site and the neighbouring community to toxins and the contamination of soil and water, including PFAS. The report was also damning of the public watchdogs such as Worksafe and EPA for failing in their duties to properly investigate and enforce standards. Many of the findings made were in relation to storage and usage of toxic/hazardous products¹¹, that there was PFOS contamination at Fiskville and the CFA Board was aware of this¹² and that the illnesses suffered by those at Fiskville and was linked to the toxins that contaminated Fiskville.¹³ A full list of findings can be found in the Final Report online.
- 2.38 The findings and recommendations outlined in both the interim and final Fiskville reports, prompted MFB to provide PFAS blood tests to all MFB operational firefighters as well as mechanical workshops staff.
- This blood screening began in April 2016 and approximately 640 staff have been tested to date. The results of this screening have established that MFB employees have on average significantly higher PFAS readings in blood serum, than the average Australian population.

¹⁰ May 2016 Parliament of Victoria Environment, Natural Resources and Regional Development Committee Inquiry into the CFA Training College at Fiskville Final Report https://www.parliament.vic.gov.au/images/stories/committees/enrc/Fiskville_training_college/Final_report/ENRRDC_58-03_Text_WEB.pdf

¹¹ See, for example Finding 21: That hazardous materials at Fiskville posed a health risk because of how they were stored and used, and how knowledge of the danger they posed was ignored.

¹² See, for example FINDING 10: That following a series of concerns about the safety of the site over several years, Fiskville was closed by the CFA Board in March 2015 after perfluorooctane sulfonate (PFOS) was found in parts of the site where it had been previously undetected, causing the Board to lose confidence in the safety of the site

¹³ See, for example, Finding 24.

- These results confirm that this exposure to PFAS is most likely due to being employed by the MFB. Similar results have been detected in Air Services Australia firefighters.
- Based on significant recent research, the legal definition of the precautionary principle and increased concerns relating to UFU member's blood screening results, the UFU has provided the Melbourne MFB with a subject matter expert to assist with part the MFB PFAS Response Project Team.
- This project team discovered that the majority of the MFB firefighting fleet was still heavily contaminated with PFAS due to persistent residues from the previous foam concentrates.
- The project team has to date achieved a number of significant achievements relating to PFAS Legacy issues.
- After independent National Association of Testing Authorities (NATA) accredited testing confirmed the contamination results, Safe PFAS Threshold Exposure Limits were established for both firefighting water as well as firefighting training water. These thresholds were established after rigorous, peer reviewed, independent analysis of human health risk assessments. The process involved subject matter experts from the UFUA, MFB, CFA, GHD environmental scientists, EPA Victoria and WorkSafe Victoria. All parties have endorsed the document.
- Following on from the establishment of these thresholds, the project team then embarked on a process to decontaminate the MFB firefighting fleet. This process was developed with the assistance of UFU/MFB subject matter experts, GHD and Toxfree specialists.
- Independent testing of completed appliances has shown remarkable results with 76% of the MFB fleet AND OVER 15kms of hose having been decontaminated so far to below these accepted thresholds.
- The MFB has released its policy around Major Hazard Facilities and the use of Non MFB approved foam concentrate in MFB appliances.

2.39 The contamination of the Fiskville Training Ground, and the dangerous flow-on effects to the health of the firefighters and fire service personnel who attended the training facility and the community members residing near Fiskville, is similar to what has been experienced at and around defence bases.

3.0 UNITED NATIONS' GLOBAL ELIMINATION ON PFOA

2019 Stockholm Convention on Persistent Organic Pollutants

- 3.1 In 2009, PFOS was added to Annex B of the Stockholm Convention on Persistent Organic Pollutants (**Stockholm Convention**). This chemical was a known pollutant with a persistent life. Australia, despite being a party to the Stockholm Convention, did not ratify this and the ban therefore has no effect domestically.
- 3.2 A decade later, in 2019, the UFUA was admitted as an observer at meetings of the Ninth Conference of the Parties to the Stockholm Convention on Persistent Organic Pollutants (**COP9**). Three representatives of the UFUA attended to advocate on behalf of professional career firefighters in Australia and worldwide. This was the first time that uniformed personnel had attended the Convention to advocate on behalf of professional career firefighters.
- 3.3 The experience and perspective of the end-users, being professional firefighters, were unique amongst the sea of nation states, companies and other organisations in attendance.
- 3.4 The UFUA was involved in the following at the COP9:
 - UFUA Delegate, Fire Rescue Victoria Acting Assistant Chief Fire Officer Michael Tisbury AFSM, co-authored a white paper “A Doubtful Future for Short-Chain PFAS – Firefighting foams and other Sources – going fluorine-free”, which was presented to the COP9¹⁴.
 - A/ACFO Tisbury formed part of the IPEN panel “Global PFAS Problem: Fluorine-Free Alternatives as a Solution” to present the above-mentioned paper on 1 May 2019. On this panel, A/ACFO Tisbury sat alongside other co-authors and scientists, to discuss the example of PFAS in the Australian (and international) fire services and the findings set out in the paper.
 - UFUA had an exhibition booth at the Information Fair alongside approximately 25 other nations, organisations and companies. At the Information Fair, which ran for approximately 3 days (2 – 4 May 2019), the UFUA booth featured information about the historical use of PFAS in the Australian fire service and the decontamination program that was being run in the Metropolitan Fire Brigade (Victoria) and is now being run by the new professional fire service, Fire Rescue Victoria.¹⁵
 - UFUA held a Spot Talk “PFAS: A firefighter’s journey” at the Information Fair on 2 May 2019.

¹⁴ IPEN 2019. “A Doubtful Future for Short-Chain PFAS – Firefighting foams and other Sources – going fluorine-free”, T Bluteau et al, IPEN F3 Panel, 9th Stockholm Convention of the Parties (COP9), Geneva, 2019.

¹⁵ As at 1 July 2020, MFB was abolished and a new fire service, Fire Rescue Victoria, commenced.

- A/ACFO Tisbury addressed the Conference of the Parties (“PFAS: A firefighter’s journey”), over 180 nations states, to advocate for a worldwide ban on PFOA.
- 3.5 The experience of the end-user was of significant interest to many of the nations and organisations in attendance, and the UFUA broadened its international network through this event. The UFUA connected with, and has since provided valuable information and assistance to, organisations from North America, South America, Europe and Asia.
- 3.6 The experience of the end-user made such an impact at the United Nations that a ban on PFOA, with some exemptions, was achieved on 3 May 2019. This was despite significant opposition from influential countries at the COP9, including China.¹⁶
- 3.7 **The SC-4/17: Listing of perflurooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride lists PFOA in Annex A of the Convention and closed major loopholes for PFOS use.** In relation to firefighting foam, Governments at the COP9 ultimately placed a five-year deadline to end PFOS use in firefighting foams.

Unanimous recommendation to list PFHxS in Annex A to the Stockholm Convention by United Nations’ Stockholm Convention Review Committee

- 3.8 Following the outcome of the COP9 and the listing of PFOA for global elimination, the UFUA was admitted to attend as an observer the fifteenth meeting of the Stockholm Convention Persistent Organic Pollutants Review Committee (**POPRC-15**) in October 2019 (Rome, Italy). The POPRC-15 is a forum comprising predominately of scientific experts that makes recommendations to the Stockholm Convention in relation to persistent organic pollutants.
- 3.9 The UFUA once again provided the perspective of the end-user. In particular, the UFUA advocated for a recommendation to ban the use of Perfluorohexane sulfonic acid (**PFHxS**).
- 3.10 There are over 4,000 types of PFAS’s, and PFHxS is one such type of PFAS. PFHxS is widely used in firefighting foam as it is a fire suppressant. PFHxS has been marketed as the safer alternative to PFAS. A/ACFO Tisbury once again attended to advocate against its use and for a recommendation to ban the chemical in firefighting foams.
- 3.11 Ahead of the POPRC-15, UFUA Delegate, A/ACFO Tisbury, co-authored a further white paper, which was presented to the POPRC-15¹⁷. This paper

¹⁶ See, for example, “China seeks loophole as UN near pact banning toxic chemical – activists”, Thomson Reuters Foundation News, Wednesday 1 May 2019: <http://news.trust.org/item/20190501154612-8hyu4/>. Accessed 9 July 2020.

¹⁷ IPEN 2019. “Perfluorohexane Sulfonate (PFHxS) – Socio-economic impact, exposure, and the precautionary principle”. T. Bluteau et al, September 2019.

demonstrated that firefighters who used AFFF foam had unacceptably elevated blood levels of PFHxS.

- 3.12 A/ACFO Tisbury formed part of the IPEN Panel at the POPRC-15 to present the above-mentioned paper as well as the use of fluoride-free foams. Once again, the nations, organisations, companies and scientific experts in attendance benefited from hearing and learning from an end-user.
- 3.13 Following robust debate between attendees, on 3 October 2019, **the POPRC-15 unanimously decided to recommend to the Conference of the Parties that it consider listing perfluorohexane sulfonic acid (PFHxS), its salts and PFHxS-related compounds in Annex A to the Convention without specific exemptions.**
- 3.14 There was significant movement in the international arena in 2019 against the use of PFOS and PFHxS. It is important that Australia, as party to the Stockholm Convention, take one step further to ratify the outcomes of the Stockholm Convention to ensure that this commitment to globally eliminate PFOA in firefighting foam is met in Australia. A uniformed approach at the federal level would also assist in ensuring that all fire services meet this requirement.

4.0 UFUA NATIONAL APPROACH: UNION PFAS POLICY

- 4.1 The UFUA, as the federally-registered national union, has assisted the Branches in advocating for the health and safety of its members and against the use of PFAS-containing firefighting foams. Learning predominately from the experience of the Victorian Branch, UFUA Branches have come together to understand the health effects of PFAS on its members.
- 4.2 PFAS is a regular item at meetings of the National Committee of Management as well as meetings of the UFUA Occupation Health & Safety Representatives.
- 4.3 In 2018 the UFUA held a PFAS Workshop in Canberra for UFUA representatives around the country. At this conference, Nigel Holmes, Queensland Government Principal Advisor, Incident Management, Central Queensland, addressed the conference to discuss contemporary research regarding PFAS and his work in Queensland.
- 4.4 At this Conference, the UFUA commenced drafting a national PFAS policy to unify the approach by UFUA Branches in dealing with PFAS in the fire services.
- 4.5 At a meeting of UFUA representatives in December 2019, the UFUA PFAS Policy was finalised and endorsed by the UFUA National Committee of Management. A copy of this Policy is attached to this submission.
- 4.6 The UFUA PFAS Policy accepts the responsibility of the Union, as a source of knowledge in relation to PFAS exposure and effects of such exposure, to ensure that the UFUA advocates beyond the fire service. This commitment is outlined in the Policy, for example (emphasis added):
- The UFU of A recognises that it has a responsibility to our membership **and the public** to protect them from preventable harm.
 - Our Union supports the removal of all persistent foams from service within Australian Fire Agencies and Major Hazard Facilities and the **appropriate ethical destruction** of the persistent foam stock.
 - **Provide advocacy to the community** in relation to PFAS issues.
- 4.7 The UFUA PFAS Policy demonstrates the importance of a cohesive, national approach (albeit at trade union level) in relation to PFAS contamination and remediation. Similarly, the UFUA supports a federal (legislative) approach to dealing with PFAS contamination and remediation.

5.0 UPDATE ON MACQUARIE UNIVERSITY PFAS BLOOD STUDY (Victoria)

- 5.1 At the time of writing the 2018 UFUA submission, the UFUA Victoria Branch had successfully negotiated with the MFB (now Fire Rescue Victoria), resulting in the MFB committing to fund to the Macquarie University PFAS Blood Study. There have since been significant developments since the UFU vigorously pursued this study and the UFUA is able to provide the PFAS Sub-Committee with a number of status updates.
- 5.2 In early 2019, the MFB, in partnership with the UFUA, commissioned Macquarie University, Faculty of Medicine & Health Sciences, to conduct a \$1.2 million Clinical Trial Study.
- 5.3 By May 2019, the UFUA Victoria Branch and MFB had launched a campaign to encourage current and retired MFB career firefighters, who met the inclusion criteria, to participate in the study.¹⁸ The main inclusion criteria were:
- MFB staff with 10 or more years of previous occupational exposure to PFAS; and
 - Eligible to donate blood (in accordance with the Red Cross guidelines).
- 5.4 As a result of this campaign, over 275 eligible MFB professional firefighters have voluntarily participated in the study.
- 5.5 The study was prompted by the aforementioned Victorian Parliamentary Inquiry into the Fiskville Training Ground, of which a Recommendation from the Interim Report was that the Victorian Government assess the possibility of providing voluntary testing for PFOS to Victorian firefighters.¹⁹
- 5.6 The PFAS Blood Study is a world first study. The study has formal, ethical approval and aims to share the knowledge obtained, and any findings, beyond Victoria. As stipulated in the brochure, **the purpose of the study is to identify whether there is a significant change in PFAS levels after regular blood or plasma donations will be effective in reducing PFAS levels. This may then reduce potential future long-term health impacts.**
- 5.7 The study is still underway and the report that will ultimately be peer-reviewed and published in a medical journal is yet to be finalised. The UFUA understands that there is fortnightly project reporting by a team of project specialists and a dedicated Advisory Panel. Regular report backs are also provided by Macquarie University to FRV and UFUA through the formal FRV/UFU Consultative Committee.

¹⁸ A copy of the brochure disseminated to employees/members is attached to this submission.

¹⁹ See Recommendation 2 of the Interim Report.

- 5.8 The outcomes of this study will be beneficial not only for professional firefighters and other fire service personnel who have been exposed to PFAS, but also to the community more broadly.

6.0 UPDATE ON MFB DECONTAMINATION PROGRAM (Victoria)

Appliances

- 6.1 The MFB, through consultation with the UFUA, embarked on a program of testing and decontaminating all MFB appliances in 2016 in accordance with the agreed safe PFAS threshold levels. As with the PFAS Blood Study, the UFUA pursued this Decontamination Program of all MFB (now FRV) appliances in the pursuit of further solutions to the issue of PFAS contamination in appliances and stations/work locations.
- 6.2 Testing revealed that the vast majority of MFB appliances were highly contaminated with PFAS, confirming previous references to PFAS being a “forever chemical”. The contamination of appliances was also exposing a new generation of professional firefighters to the legacy foam.
- 6.3 The MFB embarked on a 32-stage process to decontaminate its appliances. This 32-stage process was discussed by UFUA Delegates to the Stockholm Convention and the process has been shared with fire service individuals and organisations in the United States, Europe and New Zealand and with UFUA branches around the country. It should be noted that two independent environmental consulting firms have oversight over this decontamination program, and it is also peer-reviewed.
- 6.4 In 2019, the MFB completed the decontamination of all MFB appliances. In addition, over 5,500 lengths of firefighting hose have also been decontaminated.
- 6.5 **To the knowledge of the UFUA, no other fire service in the world has completed a testing and decontamination program of this nature.**
- 6.6 On 1 July 2020, career firefighters from MFB and career firefighters from CFA came together under the new professional fire service, Fire Rescue Victoria. Prior to this commencement date, it was understood that FRV would inherit contaminated appliances utilised by former CFA career firefighters and which would be transferring to FRV.
- 6.7 As such, the decontamination program – which has been completed for former MFB FRV appliances – will now recommence for former CFA (now FRV) appliances to ensure increased health and safety of the professional career firefighters who have transferred from CFA to FRV.

Stations and work locations

- 6.8 The MFB, through consultation with the UFUA, also undertook a testing regime at MFB work locations. This involved the MFB, in partnership with the UFU, engaging independent laboratory, Environmental Consultants and Testing Laboratories, to collect and analyse PFAS levels in the soil, fruits and vegetables grown at fire stations.

- 6.9 This testing regime is still underway and has involved 5 rounds of testing at various fire station locations. The UFUA understands that where testing has revealed elevated levels of PFAS concentrations, the MFB has undertaken various action, including:
- Seeking a further prioritisation report to develop a course of action (for remediation);
 - Providing results to the Environmental Protection Agency, for the EPA to provide specific direction regarding remediation; and
 - Commencing site remediation works immediately.
- 6.10 As is known and understood with the Defence Bases and surrounding communities, legacy forms, such as PFAS-containing firefighting foams, can creep into the community. For example, a childcare centre next door to a former MFB (now FRV) station was found to have contaminated soil. This was reported in Victorian media in February 2020. Remediation works are underway at this location.
- 6.11 As with the appliance decontamination program, with the introduction of Fire Rescue Victoria, FRV will inherit 38 former CFA stations with staff, and these stations may be contaminated with PFAS. A testing program similar to that undertaken by MFB in partnership with the UFUA may recommence for former CFA FRV stations to ensure increased health and safety of the professional career firefighters who work at those locations (as well as the CFA volunteers who may attend those locations).

7.0 FIRE STATION *DUST SAFE* INITIATIVE

- 7.1 Where PFAS contamination is a known problem, all possible, tangible solutions and remediation works must be pursued. Remediation works can only go as far as the testing for contamination allows.
- 7.2 FVR, in partnership with the UFUA, has previously undertaken testing and remediation works for exposure to asbestos and diesel particulate/diesel emissions on former MFB fire stations.
- 7.3 FRV has now commissioned Macquarie University to conduct a “Dust Safe” initiative. This initiative collects and analyses dust particles (from dust collected in the stations’ vacuum cleaners) for PFAS, asbestos, and diesel particulates at all FRV former MFB fire stations.
- 7.4 The UFUA understands that the results thus far show relatively low levels of asbestos and diesel particulates in fire station samples, which demonstrates that mitigation strategies previously put in place are working.
- 7.5 The UFUA understands that, given the results for asbestos and diesel particulates, similar positive results are expected for the PFAS element of the testing. Importantly, the results from this testing will be correlated with the results from the PFAS Decontamination Program (soil testing) discussed in Part 6.

8.0 INCREASED COMMUNITY AWARENESS

- 8.1 The 2018 UFUA submission made mention of some notable media reports in relation to PFAS contamination, not just limited to defence bases. Since the 2018 UFUA submission, there has been a noticeable increase in the media reporting of PFAS contamination issues. In the last 12 months, there have been hundreds of articles, opinion pieces, editorials and letters to the editor in relation to PFAS.
- 8.2 PFAS is now a known chemical and much of the community understands it is harmful. In the last 3 months, there have been numerous mentions of PFAS in print media, including in relation to:
- Successful PFAS class action settlement for Williamstown residents;²⁰
 - Successful PFAS class action settlement for Katherine residents;²¹
 - PFAS-contaminated soil in the West Gate Tunnel project;²²
 - PFAS contamination in Dubbo water;²³
 - Emerging PFAS research abroad;²⁴
 - PFAS testing at Launceston Airport;²⁵
 - Potential class actions arising from PFAS contamination at other defence sites (HMAS Albatross and Jervis Bay Range).²⁶
- 8.3 The significant increase in media reporting on the matter of PFAS contamination results in increased community awareness about the issue more generally. Fire service personnel, fire service locations including defence bases, and the members of surrounding communities, deserve mandated actions in relation to testing and remediation. This increased community awareness should prompt urgent remediation work for known contaminated sites as well as testing for suspected contaminated sites.

²⁰ See, for example, "Class action payout leaves member cold", Matthew Kelly, Newcastle Herald, published 30 May 2020.

²¹ See, for example, "Class action estimate surprise", Chris McLennan, Katherine Times, published 20 May 2020.

²² See, for example, "Secret EPA reports reveal tunnel contamination woes", Timna Jacks, Sunday Age, published 24 May 2020.

²³ See, for example, "New water woe: PFAS contamination", Yvette Aubusson-Foley, Dubbo Photo News, published 14 May 2020.

²⁴ See, for example, "Obesity trigger", Sunday Times, Perth, published 10 May 2020.

²⁵ See, for example, "Airport testing plan hit by virus" Caitlin Jarvis, Launceston Examiner, published 2 May 2020.

²⁶ See, for example, "Locals might be part of class actions", Robert Crawford, South Coast Register, Nowra, published 1 May 2020.

9.0 UPDATED RECOMMENDATIONS

- 9.1 In the 2018 UFUA submission, the UFUA made a number of recommendations to the Senate Standing Committee.
- 9.2 The UFUA understands that the role of this PFAS Sub-Committee is to “operate as a watching brief of government activity”.²⁷ However, in recognising the importance of a multi-pronged approach to PFAS remediation, the UFUA nonetheless respectfully proposes the following recommendations in which PFAS testing and PFAS remediation works may be pursued at a federal level:
- i. That the Federal Government commission independent research and studies to scientifically identify and analyse the illnesses (inclusive of cancers and birth defects) a result of PFAS exposure.
 - ii. That the Federal Government ratify Annex B of the Stockholm Convention on Persistent Organic Pollutants (Stockholm Convention). The developments since 2018 in the international arena and in relation to PFOA supports such ratification.
 - iii. That the Federal Government ratify the international ban on PFAS-containing firefighting foam (as passed by the Stockholm Convention in May 2019). This work towards global elimination came, in part, due to the advocacy of career firefighters in Australia.
 - iv. That the Federal Government proactively legislate against the usage of PFHxS in firefighting foam. PFHxS is not a safer alternative to PFAS.
 - v. That the Federal Government enact legislation to ensure a national, cohesive approach in relation to:
 - Firefighting water standards;
 - Firefighting foams including a mandatory ban on the use of PFAS products;
 - Soil and water testing and public reporting of testing results for all firefighting training sites;
 - Soil and water testing and public reporting of testing results for all sites where firefighting foams have been, or are in use
 - vi. That the Federal Government enact legislation to ensure that, where there is suspected or actual contamination at sites with potential or actual flow-on effects to the community, the following occur:
 - Where PFAS is detected, the relevant agency/owner of the affected soil and/or water must undertake no less than annual audits of their soil and water testing and treatment regime and the


²⁷ Remediation of PFAS-related impacts ongoing scrutiny and review”
https://www.aph.gov.au/Parliamentary_Business/Committees/Joint/Foreign_Affairs_Defence_and_Trade/PFASRemediation, accessed 13 July 2020.

- outcome of those audits be made publicly available to the local community;
- Where PFAS is detected, there is mandatory notification to the community or workers in the area of any soil or water contamination; and
 - Where an agency/owner of the affected soil and/or water knowingly exposes the community and/or employees to PFAS contaminated soil and/or water without providing such mandatory notification and failing to take all reasonable steps to prevent ongoing contamination, it be a criminal offence.
- vii. That any localised/geographic trend of PFAS contamination being detected through such testing be made available to members of the community who are likely to have been exposed to the use of, or contamination of soil and/or water as a result of the use of, PFAS products, and that these members of the community be offered blood testing and support without cost to the person;
- viii. That, similar to Recommendation 2 from the Interim Report of the Victorian Parliamentary Inquiry into Fiskville, all career (current serving and retired) firefighters be offered voluntary blood testing at no cost or detriment to the firefighter;
- ix. That a redress scheme be established for all those exposed to PFAS products including access to medical assistance and compensation for those suffering medical conditions. The scheme should cover physical and mental health as anxiety and stress around this issue is immense. Such redress scheme should be proactively commenced by the Federal Government without delay. Class actions should not be the only way for those affected to achieve a sense of justice;
- x. That it be recognised that any action to prevent ongoing exposure, to monitor the exposure and to assist with any resulting health effects is a moral obligation of the Federal, State and Territory governments as well as the employers. Career firefighters have been continually exposed through training and emergency response to these persistent, bio-accumulative and toxic chemicals in the course of their service in protecting the Australian and Aviation public.

Thank you for the opportunity to provide a submission for the consideration of the PFAS Sub-Committee.

Please do not hesitate to contact us if the UFUA can assist further or clarify any of the above.

Yours sincerely



Peter Marshall
National Secretary

ATTACHMENTS:

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| A | SC-4/17: Listing of perfluorooctane sulfonic acid, its salts and perfluorooctane sulfonyl fluoride (3 May 2019) |
| B | Report of the Persistent Organic Pollutants Review Committee on the work of its fifteenth meeting (16 October 2019) |
| C | UFUA PFAS Policy (endorsed December 2019) |
| D | Macquarie University PFAS Blood Study brochure (May 2019) |

Please note: The UFUA has not attached to this submission Attachments A – J that were annexed to the 2018 UFUA submission.