



Whole of Australian Government response to the report of the Joint Standing Committee on Foreign Affairs, Defence and Trade Inquiry into the management of per- and polyfluoroalkyl substances (PFAS) contamination in and around Defence bases

Introduction

The Australian Government welcomed the December 2018 report of the Joint Standing Committee on Foreign Affairs, Defence and Trade *Inquiry into the management of PFAS contamination in and around Defence bases*, and the opportunity to identify areas for improving the Government's response to PFAS contamination.

PFAS are a group of over 4,000 chemicals that have been used in Australia and around the world in a wide range of consumer products and industrial applications, including firefighting foams. The release of PFAS into the environment from these widespread uses has become a concern because they are highly mobile in water, do not break down naturally, and can persist in humans, animals and the environment.

PFAS management is complex, and understanding, both nationally and internationally, about these chemicals is still evolving. The Australian Government is committed to managing exposure risks to human health and the environment through implementing evidence-based solutions. We are continuing to increase our understanding of PFAS and endeavouring to improve our responses to PFAS contamination through sharing knowledge, investing in research, and collaborating to ensure the best possible outcomes for affected communities and individuals.

The Government's first priority in responding to PFAS contamination has consistently been to ensure the wellbeing of affected communities, and to reduce their exposure to PFAS, by

- identifying and removing existing exposure pathways, primarily by providing alternative drinking water supplies
- informing affected communities about other potential exposure pathways and how to reduce their exposure
- preventing further contamination arising from the use of PFAS firefighting foams, by replacing them with alternatives, and installing systems to contain PFAS contaminated materials and prevent any further migration, and
- actions that prevent further PFAS migration, such as reducing the volume of PFAS at source areas, and treating contaminated water and soil.

The Australian Government's extensive and broad-ranging activities to respond to PFAS contamination are detailed in the following responses to the recommendations of the Joint Standing Committee on Foreign Affairs, Defence and Trade *Inquiry into the management of PFAS contamination in and around Defence bases*.

Thousands of industrial chemicals are used in Australia every day in various applications – across the cosmetics, clothing, manufacturing, mining, aviation, and other industries. While the majority of industrial chemicals pose little or no risk to human health or the environment, some do need to be carefully managed. The Australian Government, in collaboration with state and territory governments, is developing a national framework for the sound management of environmental risks posed by industrial chemicals. The *National Standard for the Environmental Risk Management of Chemicals*, will be established via Commonwealth legislation and implemented in each state and territory. It will promote a nationally consistent approach to managing chemicals of concern for the environment, including PFAS.

Please note: This response also addresses the outstanding Australian Government response to the Senate Foreign Affairs, Defence and Trade References Committee report recommendations on *Firefighting Foam Contamination – Part B Army Aviation Centre Oakey and other Commonwealth, state and territory sites*. Most of these recommendations are addressed by the responses to the 2018 Joint Parliamentary Inquiry, due to significant content overlap. Where this is the case, it is stated at the beginning of the response, with reference to the relevant Senate Committee recommendation/s. Any additional Senate Committee recommendations not addressed by the Joint Parliamentary Committee recommendation responses, are listed at the end of this document, with separate responses.

Inquiry report recommendations and Australian Government responses

Recommendation 1: *The Committee recommends that the Australian Government appoint a Coordinator-General to coordinate the national response to the PFAS contamination issue, supported by an appropriately resourced office. The Coordinator-General's role should include:*

- *ongoing monitoring of PFAS levels in all management areas, using a range of sampling methods, and publish the results as soon as practicable in a publicly accessible format;*
 - *providing leadership to drive effective, transparent and consistent responses to PFAS contamination at sites across the country;*
 - *identifying gaps and priorities for investigation and remediation, based on the extent of contamination and risk to human and environmental health in each area;*
 - *working across portfolios, and with state, territory and local governments, to overcome barriers to cooperation, coordinate actions and to clearly communicate outcomes and advice to the public;*
 - *providing a national point of contact and accountability for the Government's response to the PFAS issue, including annual reporting to the Parliament.*
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Response - Noted

The Australian Government agrees with the Committee's recommendation that PFAS responses should be nationally coordinated and consistent. However, the Australian Government believes that the substance of the Committee's recommendation is being, or can be delivered through existing structures and agreements. Relevant structures and agreements are summarised below.

Australian Government PFAS Taskforce

The Australian Government PFAS Taskforce was established in December 2016, within the Department of the Prime Minister and Cabinet, in recognition of the need for strong coordination across the multiple portfolios and different levels of government involved in responding to PFAS contamination. In April 2018, the PFAS Taskforce was transferred to the Department of the Environment and Energy, where it continues to operate effectively.

The role of the Taskforce, as determined by the Prime Minister, is to provide oversight and coordination of Australian Government responses to PFAS contamination. To achieve this, the Taskforce

- oversees implementation and review of the *Intergovernmental Agreement on a National Framework for Responding to PFAS Contamination*
- provides advice to the Australian Government on PFAS management approaches
- reports regularly to the Prime Minister and other relevant Ministers on progress of Australian Government responses to PFAS contamination, and
- coordinates inter-agency communication, action, and information sharing (across all jurisdictions) on PFAS matters, as needed.

Much of the work of the PFAS Taskforce has been behind-the-scenes, with community engagement on PFAS contamination being undertaken by individual agencies as relevant (e.g. Department of Defence, Airservices Australia, Australian Government Department of Health, and state and territory regulators and health authorities). The Committee's investigations and recommendations have highlighted a need to make the functions and activities of the PFAS Taskforce more publicly transparent and accessible. One of the ways in which the Australian Government is achieving this is through the [PFAS.gov.au website](https://www.pfas.gov.au).

The PFAS.gov.au website is administered by the PFAS Taskforce and has been established as a central portal for PFAS information. The website provides links to PFAS information on Commonwealth, state and territory government agency websites, as well as links to relevant international sites. The website provides easy access to general information on PFAS, site investigation and management updates, and national and international guidance. It also provides a contact form for enquiries to the PFAS Taskforce. Recent improvements to the website included the addition of more general information on PFAS, and specific information about the PFAS Taskforce and whole-of-government activities. It will continue to be updated and improved, as additional needs are identified.

Intergovernmental Agreement on a National Framework for Responding to PFAS Contamination

In 2016, the Council of Australian Governments (COAG) committed to ongoing collaboration between all governments to support communities affected by PFAS. To drive effective and consistent responses to PFAS contamination across the country, the Australian Government brought an *Intergovernmental Agreement on a National Framework for Responding to PFAS Contamination* (PFAS IGA) before COAG in 2017. The PFAS IGA came into effect in February 2018. The agreed objectives of all jurisdictions, as outlined in the PFAS IGA are to:

- Effectively respond to PFAS contamination to protect the environment and, as a precaution, protect human health, including immediate responses to identified contamination, and longer term remediation or management responses.
- Strengthen national consistency, collaboration and cooperation in responding to PFAS contamination.
- Ensure actions are effective, implementable, financially and logistically sustainable, proportionate to risk, and support economic stability.

The PFAS IGA and its appendices, which have been developed in cooperation with all jurisdictions, contain principles and guidance to assist responsible agencies to respond consistently to PFAS contamination. This guidance is regularly reviewed and improved, based on lessons and experiences nationally. Over the last two years, the PFAS Taskforce has convened four national workshops with relevant Commonwealth, state and territory agencies to develop and promote the principles of the PFAS IGA, review its implementation, and identify any other ways to improve national cooperation in responding to PFAS effectively.

Existing management, research and policy programs

The Australian Government is investing heavily in activities to address PFAS contamination, including PFAS investigations, containment, remediation, and research. Details of Government action related to

ongoing monitoring of PFAS levels in all management areas, and identifying gaps and priorities for investigation and remediation, are addressed under the response to *Recommendation 2*.

The Government is also establishing legislation and processes that will better protect the environment from further high-risk industrial chemical contamination. This is described further under the responses to *Recommendations 7, 8 and 9*.

Recommendation 2: *The Committee recommends that the Government continue to upscale its investment in the containment of PFAS contamination plumes, and the remediation of contaminated land and water sources. The Coordinator-General (see Recommendation 1) should:*

- *publish draft remediation and management plans for each investigation area, and seek public input before finalisation;*
 - *continue support for research into remediation technologies, including disposal of contaminated soil and residue from water treatment plants;*
 - *continue to engage with international stakeholders, including past manufacturers of PFAS chemicals, to ensure best practice approaches are taken to the remediation and disposal of PFAS contamination;*
 - *in collaboration with states and territories, review the effectiveness of current advice regarding the use of contaminated bore water for irrigation purposes and to consider whether restrictions should be put in place;*
 - *ensure a consistent approach to PFAS contamination across non-Commonwealth sites in consultation with state, territory and local governments.*
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Response - Agreed in part

Please note: This response also addresses recommendations 7, 8, 11, 12, 13 and 14 of the Senate Foreign Affairs, Defence and Trade References Committee report on *Firefighting Foam Contamination – Part B Army Aviation Centre Oakey and other Commonwealth, state and territory sites - Additional comments from the Australian Greens*.

The recommendation to appoint a Coordinator-General is addressed in the response to *Recommendation 1*.

The Australian Government continues to invest in the development and implementation of evidence-based solutions to contain PFAS contamination plumes, and the remediation of contaminated land and water sources. Responsible Commonwealth agencies are leading site management and remediation, reporting publicly on these activities, cooperating with state and territory regulators and each other, and engaging with international regulators and other stakeholders to ensure the best outcomes for affected communities and the environment. Communication, cooperation, and information sharing are further facilitated by the activities of the PFAS Taskforce.

National programs to review, investigate and manage PFAS at Defence sites and federally leased airports are led by the Department of Defence's PFAS Investigation and Management Branch, and Airservices Australia (Airservices), respectively. The PFAS investigations are undertaken in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999 (NEPM)*, the *PFAS National Environmental Management Plan* and other relevant guidance.

Investment in remediation and management at Defence sites and federally leased airports

Defence sites

Defence's [National PFAS Investigation and Management Program](#) is possibly the largest program of environmental investigations ever conducted in Australia. Defence is now conducting – or has completed – detailed environmental investigations for PFAS contamination on and around 28 properties. Since the commencement of investigations (as at 31 October 2019), Defence has spent approximately \$400 million conducting investigations, providing support to affected communities, funding research activities and implementing remediation initiatives.

The Department of Defence actively supports research into efficient and effective PFAS remediation technologies that can be used across the Defence estate. Defence works with industry providers to identify and bring to maturity remedial technologies that may address PFAS migration via groundwater and surface water, and mitigation of risks from contaminated soils, wastewater treatment plants, and construction materials. As at October 2019, Defence has funded 10 research activities valued at approximately \$3.5 million.

In May 2019 Defence held a PFAS Industry Information day to provide industry with advice on the scope and scale of Defence's PFAS remediation challenge, and how Defence will approach the market to seek solutions for these challenges. The event was attended by 175 industry representatives.

Defence has undertaken a range of PFAS management activities, including town water connections and rainwater tank installations for properties previously reliant on contaminated bores for their drinking water, excavation of PFAS-contaminated sediment from on-base drains, and implementation of groundwater and surface water treatment technologies. Further information on the provision of drinking water is included in the response to *Recommendation 4*.

Federally leased airports

Since 2006, Airservices Australia has spent close to \$30 million on PFAS-related matters, including investigations, stakeholder engagement, workplace health and safety matters, and research and development activities. Airservices aviation rescue and firefighting service (ARFFS) has only carried PFAS firefighting foams at 22 sites. Two of these sites are two joint user facilities where Defence is undertaking investigations (Darwin and Townsville). Airservices has carried out investigations at the other 20 sites. A total of 16 Preliminary Site Investigations and three Detailed Site Investigations have been completed, with one Preliminary Site Investigation still underway. A further eight Detailed Site Investigations are commencing (as at October 2019). Investigation reports are published on the [Airservices National PFAS Management Program website](#) as they become available.

Airservices undertakes activities to manage, reduce or eliminate site-specific risks associated with known or likely PFAS contamination arising from its operations. This includes research and development (R&D) projects associated with PFAS management and remediation. Airservices is providing funding to support a number of research and development activities associated with PFAS management and remediation. Current activities include waste water treatment trials, concrete treatment trials and stormwater treatment trials.

Airservices has invested in research and development with industry and university groups to improve understanding of the behaviour of PFAS in the environment, support initiatives to establish screening criteria for ecological, human health and waste management, and develop treatments to remove PFAS

from contaminated materials (such as concrete) and wastes (including wastewater from the training grounds). Until screening criteria were developed and published in 2018, a main focus of all Airservices' PFAS activities was to maintain operational capability. Recent projects Airservices has contributed funding to include research at the University of Queensland into remediation of PFAS contaminated soil using soil washing and immobilisation, and development of integrated, scalable solutions for PFAS removal and destruction from a variety of sources.

The Department of Infrastructure, Transport, Cities and Regional Development (Infrastructure) is seeking to support more effective responses to PFAS contamination at airports through a whole-of-precinct approach to site assessment and management. Infrastructure has written to 37 airports where the Commonwealth has provided aviation rescue firefighting services, requesting information be shared on the identification, assessment, management and/or remediation of PFAS contamination on or around each site. Infrastructure also wrote to environmental protection agencies in each of the states and territories to seek their assistance and advice on PFAS contamination at the identified airport sites. This information, together with information from completed Airservices investigations, will allow assessments to be completed for entire airport precincts. These assessments should clarify overall levels of PFAS contamination, as well as roles and responsibilities for undertaking any necessary management activities. Following this process, management plans will be developed and published in consultation with the public.

Assessment reports and management plans

Defence sites

In order to be open and transparent, Defence provides detailed, up-to-date information on the progress of its site contamination investigations at the end of each phase. This information is provided to affected local communities and businesses, local councils, state and territory governments, and other interested stakeholders.

Community updates are provided through community events, one-on-one meetings, newsletters, factsheets and telephone information lines that Defence has established for each investigation. The reports for each investigation, including Human Health Risk Assessment Reports and Ecological Risk Assessment Reports, publications and presentations provided at community events, are published on the Defence PFAS website. Defence shares its investigation data with the environmental protection authorities and other relevant state and territory government authorities, including to inform any decisions they may take about releasing precautionary advice to PFAS affected communities to minimise exposure to PFAS.

Once Defence completes an environmental investigation, the findings are used to develop a PFAS Management Area Plan (PMAP). The PMAP recommends actions to manage and reduce the risks of PFAS exposure and continued migration. As at 31 October 2019, Defence has published PMAPs for 17 sites, all of which are available on the [Defence PFAS website](#).

When developing PMAPs, Defence takes into consideration community feedback received throughout the investigation. Due to the complexity and evolving scientific understanding of PFAS characteristics, the PMAP recommendations are primarily determined by expert advice from Defence's environmental consultants. When implementing PMAP recommendations Defence consults with all affected stakeholders including any affected members of the community, and state and territory regulators.

Defence has committed to reviewing PMAPs annually, or more frequently if required to respond to any new information or technology that has the potential to impact the PMAP objectives.

Each PMAP includes an Ongoing Monitoring Plan which outlines the sampling program that will be undertaken by Defence to monitor and track PFAS contamination over the coming years. Ongoing monitoring will provide an evidence base for the management of PFAS contamination, including looking at changes in concentration and geographical spread. It will help Defence and the community to understand whether the controls in place are effective, need to be adapted, or if further action might be required.

An annual Ongoing Monitoring Report for each site will be made publically available on the [Defence PFAS website](#).

Federally leased airports

To ensure comprehensive and up-to-date information is available to affected communities, the results of site investigations for each investigation area are published on the [Airservices National PFAS Management Program website](#) as they become available.

Airservices routinely shares the results of its site investigations with airports and relevant regulators, with whom it discusses appropriate next steps. This is frequently done through Roundtable/ Project Control Group meetings during the investigation and publication phase of projects - Airservices has participated in around 40 meetings since 2017. Airservices also presents updates at Community Aviation Consultation Groups and similar engagement meetings at federally-leased airports to inform members of the airport community of its investigations and results. When requested, Airservices participates in community drop-in sessions organised by airports to answer community questions on its investigations.

Airservices is in the early stages of developing PFAS management plans at eight airports.

Whole-of-government support for research into remediation technologies

The Australian Government has provided \$13 million for a national PFAS Remediation Research grant program, administered by the Australian Research Council (ARC) through its Special Research Initiatives scheme. The program supports development of innovative technologies to investigate and remediate PFAS contaminated areas, including soil and other solid contaminated debris, groundwater, waterways and marine systems. Since the program first opened in 2017, thirteen research projects have been funded across Australia. Project details are available on the ARC website, under the [PFAS Remediation Research Program](#).

The Australian Government has also invested over \$12.5 million in research to better understand the potential health impacts of PFAS exposure. This is described in further detail under *Recommendations 3 and 4*.

Engagement with international stakeholders

The Australian Government engages with international stakeholders on best practice approaches to PFAS contamination remediation and disposal through a range of formal and informal mechanisms.

The Department of the Environment and Energy leads the Australian Government's engagement with international chemicals conventions, including the Stockholm, Basel and Rotterdam Conventions. In this capacity, the Department participates in relevant technical and decision making meetings, and actively participates in the development of cooperative approaches to resolving the global issue of PFAS.

The Department of the Environment and Energy engages with the Organisation for Economic Cooperation and Development (OECD) member organisations on PFAS related matters through the OECD Joint meeting of the Chemicals Committee and the Working Party on Chemicals, Pesticides and Biotechnology and the OECD/United Nations Environment Program (UNEP) Global Perfluorinated Chemicals (PFC) Group. This engagement was instrumental in establishing mechanisms for OECD member organisations to share information on remediating PFAS contamination.

The Department of the Environment and Energy and the Department of Defence regularly represent the Australian Government at meetings and conferences where PFAS is discussed. Of particular note are the productive and constructive two-way relationships with US counterparts across the US Department of Defense and the US Environmental Protection Agency (US EPA). For example, discussions with the US Department of Defense Strategic Environmental Research and Development Program (SERDP)/Environmental Security Technology Certification Program (ESTCP) provide valuable insights into extensive US Defense research and technology development relating to PFAS contamination. Engagement with the US EPA enables visibility and understanding of US thinking and consideration regarding guidelines and standards.

In addition, Australian agencies regularly engage with industry, academic and peak bodies from a range of other jurisdictions to be aware of current and emerging developments.

Collaboration and consistency across jurisdictions on environmental standards

The Australian Government, through the Department of the Environment and Energy, has worked closely with all states and territories to develop a PFAS National Environmental Management Plan (PFAS NEMP). The PFAS NEMP establishes a practical basis for nationally consistent environmental guidance and standards for managing PFAS contamination. The PFAS NEMP was first agreed by all Australian environment ministers in January 2018, and work is ongoing to ensure it is continually updated to reflect any new information arising. A second version, with additional guidance on soil re-use, wastewater, and storage and containment, was agreed by Heads of EPAs on 18 October 2019.

The PFAS NEMP sets out national guidance on re-use of water with PFAS in it, such as irrigation of non-edible crops. It states that decisions about irrigation should give consideration to the animals and plants at the site and nearby, as well as any requirements set by the relevant regulators. The PFAS NEMP is described further under *Recommendation 7*.

Recommendation 3: *The Committee recommends that the Australian Government review its existing advice in relation to the human health effects of PFAS exposure, including to acknowledge the potential links to certain medical conditions.*

Response - Agreed

The Australian Government accepts this recommendation and has undertaken a range of relevant activities, led by the Department of Health.

Interim national guidance on Per- and Poly-fluoroalkyl Substances was developed by the Environmental Health Standing Committee (enHealth) in 2016.¹ This advice was intended to assist relevant authorities in assessing public health risks, until such time as new guidelines could be developed taking into account the data, parameters and methodology that are most suitable to Australia.

An [Expert Health Panel for PFAS](#) was established to provide advice to the Australian Government on the potential health impacts associated with PFAS exposure and to identify priority areas for further research. The Panel's Report was released on 7 May 2018. The Report acknowledges a relationship between PFAS exposure and a number of health effects such as elevated levels of serum cholesterol, increased levels of uric acid in the blood, reduced kidney function and altered levels of thyroid and sex hormones. However, these effects are small and generally within ranges seen in the general population.

On 5 July 2019, enHealth issued revised *Guidance Statements on PFAS* which took into account the findings of the Expert Health Panel's report and feedback received through the *Inquiry into the management of PFAS contamination in and around Defence bases*. The 2019 Statements offer more detail about the types of effects on the human body that may be associated with PFAS exposure. The revised Guidance Statements reinforce the advice that while exposure to PFAS probably has minimal impact on human health, as a precaution, people living in PFAS contaminated areas should minimise their exposure to PFAS until more evidence is gathered on possible health effects.

The Department of Health has updated its information on the potential health effects of PFAS as new information has become available and will continue to review scientific evidence both nationally and internationally in relation to the human health effects of PFAS through its established monitoring systems.

¹ The Environment Health Standing Committee (enHealth) is a committee made up of leaders in public and environmental health from all Australian government health departments that sits under the Australian Health Protection Principal Committee (AHPPC) and provides advice to the Council of Australian Governments.

Recommendation 4: *The Committee recommends that the Australian Government, as soon as possible, undertake measures to improve participation in the voluntary blood testing program for PFAS. This should include measures to:*

- *increase community awareness about the purpose and importance of the tests, and the associated epidemiological study;*
- *simplify the testing process;*
- *extend the program to be available in additional areas; and*
- *ensure Australia's testing strategy is comparable to international studies.*

Further, the Committee recommends that the Government consider the potential value of blood testing to monitor the effectiveness of measures being used to break PFAS exposure pathways in affected communities. This will necessitate longitudinal analysis of those who have been previously tested and additional tests being made available, after an appropriate period, to persons who have been previously tested.

Response - Noted

Please note: This response also addresses Recommendations 1 and 5 of the Senate Foreign Affairs, Defence and Trade References Committee report on *Firefighting Foam Contamination – Part B Army Aviation Centre Oakey and other Commonwealth, state and territory sites*, and Recommendation 3 of the *Additional comments from the Australian Greens*.

Voluntary blood testing program and epidemiological study

On 16 August 2016, the Australian Government committed \$55 million to support communities affected by PFAS contamination emanating from Defence bases. Of this, \$14 million was appropriated to the Department of Health to administer community support packages to the communities surrounding RAAF Base Williamtown, NSW (Williamtown) and Army Aviation Centre Oakey, Queensland (Oakey). On 3 December 2017, the Australian Government announced a further \$5.7 million community support package for those impacted by the PFAS emanating from RAAF Base Tindal, Northern Territory (Katherine). The community support packages included:

- an Epidemiological Study to help us better understand the human health implications of exposure to PFAS
- a Voluntary Blood Testing Program for residents living in the investigation areas around the Williamtown, Oakey and Katherine bases
- a communications strategy focusing on the human health related aspects of PFAS, and
- dedicated mental health and counselling services to assist communities affected by PFAS contamination, including face to face, online and telephone counselling services.

Community Support Packages were offered to these communities because the extent of contamination and significant exposure pathways, such as contaminated drinking water, to a large proportion of the population were established and well understood.

The Department of Health has commissioned the National Centre for Epidemiology and Population Health at the Australian National University (ANU) to undertake an epidemiological study. This study will investigate the exposure levels and potential health effects of PFAS in areas of known contamination in the communities of Williamstown, Oakey, and Katherine compared to a comparable non-exposed population. Each component of the epidemiological study will be publicly released, with the entire study expected to be completed and published by the end of 2020.

The Voluntary Blood Testing Program (VBTP) formed part of the epidemiological study and will contribute to our understanding of the health effects that may be associated with PFAS exposure. The closing date for the Program was extended from 30 April 2019 to 30 June 2019 to give members of the community further opportunity to participate. Both the extension and the closing of the Program were extensively advertised in local and national print media, local radio and on social media platforms. The closure on 30 June 2019 allows the ANU study to progress to the next stage.

The testing process to receive a free blood test for PFAS under the VBTP was consistent with standard practices for pathology tests. As with any other pathology test, eligible individuals were required to seek a pathology request form from their General Practitioner (GP), attend a pathology collection centre to have their blood sample collected and the results of the test then sent to the referring GP. As with any other blood test, it is important for a person to have a clinical discussion with a GP on what the test and the results mean. Those eligible for a free blood test were also eligible for two free GP consultations, one before the test, and one after to discuss the results.

To encourage further research into the health effects of PFAS, the Australian Government established a National Research Program into the Human Health Effects of Prolonged Exposure to PFAS. A total of \$11.7 million has been allocated to fund a Targeted Call for Research. The National Health and Medical Research Council (NHMRC) is currently reviewing research proposals.

The Australian Government will continue to review scientific evidence both nationally and internationally in relation to the human health effects of PFAS.

Blood testing for Defence personnel

Concurrent with the commencement of the Voluntary Blood Testing Program (VBTP), Defence introduced a blood testing program for members of the Australian Defence Force (ADF). Eligibility for ADF members for the blood testing program was the same as eligibility for the VBTP administered by the Department of Health for the civilian population.

ADF members were required to have a formal pre-test consultation with their Defence Medical Officer to ensure they fully understand the blood test and how the results should be interpreted. Tests proceeded with the member's written consent, with the option for the results to be stored for use in the associated Epidemiological Study and further research. Members were also required to undergo a post-test consultation to discuss their results and any issues arising from testing. Members were referred for further support if required. As at 30 June 2019, 323 Australian Defence Force members had participated in blood testing and received their results.

Defence also offers ADF members the opportunity to record details of historical occupational exposure to PFAS. For current ADF members, Defence has developed the ADF Historical Occupational Exposure Record to facilitate reporting of past exposures to any potential occupational hazard, including PFAS, not already recorded in their medical record. Under the Defence Asbestos and Hazardous Chemicals

Exposure Scheme, current and former employees of the Department of Defence and the Australian Defence Force (including ADF personnel, Cadets and contractors) are able to formally record historical occupational exposure to PFAS.

Blood testing for Airservices personnel

Airservices Australia has been conducting its own voluntary blood testing program that has developed into a longitudinal study of occupational exposure of fire fighters to PFAS. The first phase was conducted in 2013, with approximately 150 Airservices fire fighters participating. The second phase was conducted throughout 2018-19, with 799 participants. Blood sample analysis is expected to be completed by the end of 2019.

Both studies have been conducted by the University of Queensland and were designed with significant input from a cross-sectional working group that included operational fire fighters, an emergency vehicle technician and a union representative. The two studies combined aim to confirm whether existing workplace health and safety controls continue to be effective in reducing potential PFAS occupational exposure over time. The studies will not provide definitive advice about an individual's health, but the results will contribute to the broader research into PFAS exposure levels and potential human health associations.

Recommendation 5: *The Committee recommends that the Australian Government assist property owners and businesses in affected areas for demonstrated, quantifiable financial losses associated with PFAS contamination that has emanated from Defence bases. Priority for compensation, including the possibility of buy backs, should in the first instance be given to the most seriously affected residents, including:*

- *property owners who have suffered losses as a result of being unable to use their land for a specific purpose that it was intended for at the time of purchase;*
- *persons who invested in land between the time that it was known by the Australian Government to be contaminated and the time of that contamination being made public; and*
- *businesses and other owners of property in the most highly contaminated areas.*

The compensation should be flexible enough to accommodate a variety of individual circumstances.

Acceptance of an offer for compensation in respect of their property's utility or value should not preclude the person from a future claim in relation to any human health effects that may be found, as a result of future research, to be attributable to PFAS exposure.

Response - Noted

Please note: This response also addresses Recommendation 3 of the Senate Foreign Affairs, Defence and Trade References Committee report on *Firefighting Foam Contamination – Part B Army Aviation Centre Oakey and other Commonwealth, state and territory sites*, and recommendation 10 of the *Additional comments from the Australian Greens*.

The Government has considered all the available information relating to PFAS contamination, including individual site investigation results, community views, expert advice, and scientific data, and is responding to PFAS in a way that is consistent with the available evidence.

The Government draws on a range of evidence to inform decisions on the kinds of Government support provided to affected communities:

- **Outcomes of site investigations**
Preliminary and detailed investigations provide information on the levels of PFAS in soil and water on and around a site. The investigation results are used to determine whether further action is required, including whether to conduct human health and ecological risk assessments.
- **Human health and ecological risk assessments**
These detailed assessments determine possible exposure pathways for humans, and for flora and fauna. The exposure pathways for humans are usually things like ingesting contaminated bore water or surface water, or consuming certain plants or animals grown in contaminated soil or irrigated with contaminated water. Where PFAS concentrations are above acceptable levels, further action is taken to remove or reduce human and ecological exposure through those pathways. This action might include providing residents with an alternative water supply (like connection to town water or installing rainwater tanks); providing individually tailored advice on how to reduce exposure from home-grown produce (as each individual's circumstances will be

different); and removing PFAS from water and/or soil at the source, to reduce migration to surrounding areas.

- **Expert health advice**

The Government relies on advice from a range of health experts and expert health bodies. The consistent expert advice has been that while exposure to PFAS probably has minimal impact on human health, as a precaution, people living in PFAS contaminated areas should minimise their exposure to PFAS until more evidence is gathered on possible health effects.

- **National and International developments**

The Government works closely with state and territory counterparts, participates in international chemicals conventions, and monitors international action, to ensure its PFAS responses are consistent and in-step with recent developments and practices.

The Government will continue to review its PFAS management practices and to adjust them as necessary to respond to any new evidence as it arises.

It is open to any individual or business who believe they have suffered loss or damage, as a consequence of Government activities, to submit a legal claim directly to the relevant agency or Department.

The Government supports the just resolution of legal claims by agreement, not litigation, where appropriate. All legal claims are handled in accordance with the Attorney-General's Legal Services Directions 2017 (Cth).

Recommendation 6: *The Committee recommends that the Australian Government make available free, individualised case management and financial counselling services to those affected by PFAS contamination.*

Response - Agreed in part

Please note: This response also addresses Recommendation 2 of the Senate Foreign Affairs, Defence and Trade References Committee report on *Firefighting Foam Contamination – Part B Army Aviation Centre Oakey and other Commonwealth, state and territory sites.*

Financial counselling is available to all Australians as a free service offered by community organisations and some government agencies. However, the Australian Government acknowledges that individuals living in and around PFAS investigation areas may not be aware of all the existing services available to them.

Community Liaison Officers (CLOs) from the Department of Human Services have been appointed in Oakey and Williamstown to provide ongoing support to community members. The role of the CLOs is to support community engagement, link residents with support services and facilitate local coordination with government authorities.

The Government will continue to deliver comprehensive information about support services available to affected communities. Relevant agencies, including the Department of Defence, the Department of Infrastructure, Transport, Cities and Regional Development, and the PFAS Taskforce, will use established communication channels and consider any additional opportunities to provide advice on these matters.

These services are in addition to comprehensive mental health and counselling support services for all Australians experiencing mental health issues, regularly delivered by the Australian Government, and by state and territory agencies across Australia.

Recommendation 7: *The Committee recommends that the Australian Government implement legislation and policies to:*

- *ban nationally the use of, contain, and ultimately safely destroy, long chain PFAS-based firefighting foams (including those containing PFOS, PFOA and PFHxS);*
 - *place appropriate restrictions on the non-essential use of shorter chain PFAS-based foams; and*
 - *continue to encourage the use of PFAS-free alternatives wherever possible.*
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Response - Agreed in principle

Please note: This response also addresses Recommendation 4 of the Senate Foreign Affairs, Defence and Trade References Committee report on *Firefighting Foam Contamination – Part B Army Aviation Centre Oakey and other Commonwealth, state and territory sites*, and Recommendations 2 and 5 of the *Additional comments from the Australian Greens*.

Existing controls and recommendations

There have been controls placed on PFOS, and select PFOS precursors, since 2014. The introduction or export of these chemicals is prohibited unless approval is obtained through the National Industrial Chemicals Notification and Assessment Scheme (NICNAS).

In addition to these controls, NICNAS has made a number of recommendations in relation to the use and disposal of PFAS, which include:

- PFOS, PFOA and other related chemicals should continue to be restricted to essential uses where less hazardous alternatives are not available.
- PFOS-based firefighting foam should only be used in essential applications (i.e. not be used for training purposes).
- Industry should actively seek alternatives to and phase out PFAS and PFAS-related substances of concern.
- Existing stocks of PFAS firefighting foams should be disposed of responsibly on expiry.
- Importers and users of PFAS should be aware of international activities relating to PFAS.
- Importers should ensure that alternative chemicals are less toxic and not persistent in the environment.
- Up-to-date information on safe use and handling of PFAS should be provided on labels and Safety Data Sheets.

These recommendations provide advice to users of PFAS and regulators. Commonwealth, state and territory governments are responsible for managing chemical use and waste disposal within their jurisdictions. Each jurisdiction is responsible for establishing requirements that users should meet to protect health, safety and the environment.

Improving the management of industrial chemicals

Responsibility for managing chemical use and waste disposal is shared between the Commonwealth and states and territories. The Australian Government has been working with state and territory governments to set nationally consistent standards and guidance for managing existing PFAS contamination. Work is also underway to establish frameworks that will set standards for proactive management of the environmental risks from PFAS and other industrial chemicals into the future. These initiatives are described in more detail below.

The Australian Government, through the Department of the Environment and Energy, is collaborating with all states and territories to establish a *National Standard for Environmental Risk Management of Industrial Chemicals* (National Standard). The National Standard will categorise industrial chemicals, including PFAS, based on the level of risk they pose to the environment, and will set a nationally consistent management approach for the use and disposal of these chemicals. Where risks to the environment are unreasonable and unmanageable, high concern chemicals may be banned or severely restricted to essential uses.

Work on framework legislation to establish the National Standard is currently underway. It will address a gap in environmental regulation of industrial chemicals and provide assurance that environmental risks are managed. The National Standard will be implemented by each jurisdiction, including the Australian Government in Commonwealth areas. All Australian governments have agreed to implement the National Standard in accordance with a national implementation plan. Implementation arrangements in jurisdictions will give effect to the standards set under the framework legislation.

As noted in the response to *Recommendation 2*, the Australian Government, through the Department of the Environment and Energy, has worked closely with all states and territories to develop the PFAS National Environmental Management Plan (the PFAS NEMP). The PFAS NEMP is agreed by all Australian environment ministers and work is ongoing to ensure it is continually updated to reflect new information. The PFAS NEMP establishes nationally consistent environmental guidance and standards for managing PFAS contamination and waste management of PFAS of concern (including PFOS, PFOA and PFHxS). It provides information on recommended approaches to storage, transport and waste management, including landfill disposal and destruction, of PFAS contaminated materials and wastes (including PFAS-containing products). The PFAS NEMP is implemented by individual jurisdictions through their own regulatory mechanisms.

The regulatory arrangements for industrial chemicals, including PFAS, will be further strengthened through the new *Industrial Chemicals Act 2019* commencing on 1 July 2020. This will provide the Executive Director of the Australian Industrial Chemicals Introduction Scheme (AICIS, which will replace NICNAS from 1 July 2020) with the power to initiate an evaluation of an industrial chemical at any time. As an outcome of an evaluation, the Executive Director of AICIS may vary the terms of, or cancel, the listing of a chemical on the Australian Inventory of Industrial Chemicals,² or vary the terms of, or cancel, an assessment certificate.³

² A chemical listed on the Australian Inventory of Industrial Chemicals will be able to be introduced into Australia, in accordance with the terms of the listing, by any registered introducer.

³ If an industrial chemical is not listed on the Australian Inventory of Industrial Chemicals, and does not fall within one of four other introduction categories (“exempted”, “reported”, “commercial evaluation” or “exceptional circumstances”), an assessment certificate will be required for the introduction of the chemical to Australia. The Executive Director must not issue an assessment certificate if not satisfied that any risks to human health and the environment can be managed.

Encouraging use of PFAS-free alternatives

From 2004, Defence commenced phasing out its use of legacy firefighting foams and progressively transitioned to a more environmentally safe product called Ansulite for use on the Defence estate. Ansulite is used by Defence in emergency situations where human life is at risk, or in controlled environments to test equipment. Furthermore, Defence has made changes to the way it uses firefighting foam to ensure that the risk of releasing the products into the environment is minimised. Any Ansulite used for testing is captured and treated and/or disposed of at licensed waste disposal facilities. It is likely that to support Defence capability needs, some PFAS-containing foams will continue to be used within Defence until certified alternatives to existing firefighting foams become available.

Defence is working to identify a suitable fluorine-free foam, that is, a foam that does not contain PFAS, to replace Ansulite in Defence firefighting vehicles. Defence is anticipating a replacement product will be identified by December 2019 and that a national transition of Defence firefighting vehicles to the new foam will be undertaken in 2020.

Airservices proactively moved away from the use of PFAS-containing firefighting foams in the early 2000s and has not used PFAS foams at any civilian airport since 2010.

The Australian Government also notes work by the Persistent Organic Pollutants Review Committee of the *Stockholm Convention on Persistent Organic Pollutants* to identify potential alternative chemicals to PFOS and PFOA used in firefighting foams. This includes assessment of availability, technical feasibility, accessibility and efficacy, and risks of the alternatives where information is available. The work is available on the Stockholm Convention website.

Recommendation 8: *The Committee recommends that the Australian Government urgently ratify the listing of PFOS under the Stockholm Convention on Persistent Organic Pollutants.*

Further, the Committee recommends that the Government expedite the process for ratification of PFOA and PFHxS in the event that they are listed under the Stockholm Convention in the future.

Response - Agreed in principle

Please note: This response also addresses Recommendation 6 of the Senate Foreign Affairs, Defence and Trade References Committee report on *Firefighting Foam Contamination – Part B Army Aviation Centre Oakey and other Commonwealth, state and territory sites*, and Recommendation 6 of the *Additional comments from the Australian Greens*.

The *Stockholm Convention on Persistent Organic Pollutants* (the Stockholm Convention) aims to protect human health and the environment from Persistent Organic Pollutants. Chemicals listed under the Convention are subject to elimination or restriction, as well as waste management requirements. PFOS was listed on the Convention in 2009, and PFOA was listed in early 2019. PFHxS was recommended for listing in October 2019 and will be considered by the next Conference of the Parties in 2021.

Australia ratified the Stockholm Convention on 20 May 2004 and chose to be an ‘opt-in’ party. This means that, unlike most other parties, Australia undertakes a domestic treaty making process to determine whether to ratify any amendments to the Convention, which includes any new chemical listings. Australia’s treaty making process includes analytical and consultative steps to gather information, and consideration by the parliamentary Joint Standing committee on Treaties.

In order to ratify the listings of PFOS and PFOA, and any future listing of PFHxS, Australia must be able to meet the specific obligations for the management of those chemicals under the Stockholm Convention. This means ensuring there is an appropriate regulatory framework in place. The *National Standard for Environmental Risk Management of Industrial Chemicals* (National Standard), once established, will provide for a nationally consistent approach for environmental risk management of industrial chemicals. This will support implementation of convention requirements.

The Australian Government, and state and territory governments, have undertaken extensive consultation on the National Standard over the past five years. Governments are continuing targeted consultation with affected stakeholders, industry and governments to ensure a robust regulatory framework. The Australian Government is working to bring forward framework legislation for consideration by the Parliament as soon as possible.

While the National Standard will fill a regulatory gap in Australia’s chemicals management framework, other legislation covers specific aspects of chemical use and may be used to implement convention obligations and support ratification. This includes the international transport of wastes, product stewardship schemes, and chemicals with non-industrial uses.

In October 2017, the Australian Government consulted publicly on a draft regulation impact statement (RIS) to inform a government decision on ratifying the listing of PFOS in the Stockholm Convention. The consultation RIS proposed options for a national approach to managing PFOS chemicals to minimise

future emissions, in accordance with the globally accepted standards established by the Convention. The ratification process will take into account the information gathered in the RIS, and will be finalised in the context of the new National Standard.

Recommendation 9: *The Committee recommends that the Australian Government initiate an independent review of environmental regulation of Commonwealth land. The review should consider:*

- *the adequacy of current and proposed arrangements to ensure that responses to contamination events originating on Commonwealth land are given appropriate regulatory oversight;*
 - *possible measures to enhance the regulatory response to contamination events that cross jurisdictional boundaries;*
 - *the relative advantages and disadvantages of establishing a Commonwealth Environmental Protection Agency, or similar body, to regulate Commonwealth lands; and*
 - *possible alternative options to enhance regulatory oversight of Commonwealth land, and contamination events emanating from Commonwealth land.*
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Response - Noted

Please note: This response also addresses recommendation 7 of the Senate Foreign Affairs, Defence and Trade References Committee report on *Firefighting Foam Contamination – Part B Army Aviation Centre Oakey and other Commonwealth, state and territory sites*.

The Australian Government has considered options for improving environmental regulation of Commonwealth land as part of the broader chemical reform agenda. The core of the national chemical reform program is the *National Standard for Environmental Risk Management of Industrial Chemicals* (National Standard). This is an important reform that will reduce the risks associated with industrial chemical use, and hence reduce the risk of future contamination events. More detail about the National Standard is provided under the response to Recommendation 7.

In 2015 the Council of Australian Governments (COAG) agreed that the National Standard will be established under Commonwealth framework legislation. The Commonwealth has commenced drafting this framework legislation. COAG also agreed that, once established, the National Standard would be implemented by jurisdictions according to their responsibilities. This means that activities on Commonwealth land will need to comply with any restrictions or controls on the use and disposal of industrial chemicals, determined through the National Standard.

The Australian Government will continue to consider issues associated with regulating contamination on Commonwealth land, as part of the chemical reform agenda.

The *Environment Protection and Biodiversity Conservation Act 1999* regulates activities on Commonwealth land, and the activities of Commonwealth agencies that may have a significant impact on the environment. Section 522A of the Act requires that its operation be independently reviewed every ten years. The second 10 year review commenced in October 2019 and will conclude in October 2020. The terms of reference for the review explicitly require it to consider recommendations from previous reviews and inquiries. Information about the review, including terms of reference can be found [here](#).

Additional responses to the Senate Foreign Affairs, Defence and Trade References Committee report on *Firefighting Foam Contamination – Part B Army Aviation Centre Oakey and other Commonwealth, state and territory sites* - recommendations 1, 4 and 9 of the additional comments from the Australian Greens.

Recommendation 1

The Australian Greens recommend that the Department of the Environment undertake an immediate recall of existing stocks of PFOS and PFOA based firefighting foams.

Response - Noted

The Department of the Environment and Energy has no regulatory power or other mechanism to recall existing stocks of PFOS and PFOA based firefighting foams.

Chemical management in Australia is a shared responsibility between the Commonwealth and states and territories. Each Australian government is responsible for controlling the use and disposal of industrial chemicals within their jurisdiction. Once established and implemented by all jurisdictions, the *National Standard for Environmental Risk Management of Industrial Chemicals* will provide the ability to set nationally consistent requirements for the use and disposal of existing stocks appropriate to managing environmental risks.

Recommendation 4

The Australian Greens recommend that urgent regulatory action be taken to ensure people are protected from ongoing exposures to perfluorinated compounds in consumer products, in food and in drinking water.

Response - Agreed in principle

The Australian Government has several existing complementary frameworks that work together to protect both human health and the environment from potentially harmful impacts arising from exposure to industrial chemicals such as PFAS.

Consumer products

Chemical management in Australia is a shared responsibility between the Commonwealth and states and territories, with each having different responsibilities. The regulation of the use, release and disposal of industrial chemicals is primarily a state and territory responsibility, noting that the Commonwealth has responsibilities for managing chemical use on its own land.

Other Commonwealth responsibilities include assessments under the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) and Australia's engagement with international chemical conventions. The safety of consumer products is regulated by the Australian Competition and Consumer Commission (ACCC).

The NICNAS is a statutory scheme established under the *Industrial Chemicals (Notification and Assessment) Act 1989* (the ICNA Act) to aid in the protection of public health, the environment and worker health and safety. NICNAS is a chemical entity-based notification and pre-market risk assessment scheme. Industrial chemicals are defined in the context of their use and by their exclusion as therapeutic goods, food/food additives, pesticides and veterinary medicines.

NICNAS's human health and environmental risk assessment recommendations are also taken up by ACCC, which can regulate consumer goods and product-related services by issuing safety warning notices, banning products on a temporary or permanent basis, imposing mandatory safety standards or issuing a compulsory recall notice to suppliers.

The regulatory arrangements for industrial chemicals, including PFAS, will be further strengthened through the new *Industrial Chemicals Act 2019* commencing on 1 July 2020. This will provide the Executive Director of the Australian Industrial Chemicals Introduction Scheme (AICIS, the new scheme replacing NICNAS from 1 July 2020) with the power to initiate an evaluation of an industrial chemical at any time. As an outcome of an evaluation, the Executive Director may vary the terms of, or cancel, the listing of a chemical on the Australian Inventory of Industrial Chemicals,⁴ or vary the terms of, or cancel, an assessment certificate.⁵

Food

Food Standards Australia New Zealand (FSANZ) sets Maximum Levels for some chemicals in food. These are used by state and territory regulatory agencies (for example food safety authorities) to ensure food safety. In June 2016, the Department of Health commissioned FSANZ to undertake a comprehensive review and assessment of all available studies and recommend final human health based guidance values (HBGVs) for PFOS, PFOA and PFHxS in Australia. The process which FSANZ used to derive the final HBGVs was nationally and internationally peer reviewed. These recommended values were considered by enHealth and the Australian Health Ministers' Advisory Council (AHMAC) and endorsed by the Australian Health Protection Principal Committee (AHPPC).

On 3 April 2017, the Department of Health published FSANZ's report, *Perfluorinated Chemicals in Food*, and its recommended HBGVs for PFOA and the sum of PFOS and PFHxS expressed as tolerable daily intakes (TDIs). In this report, FSANZ noted that dietary exposure to PFOS, PFOA and PFHxS from the general food supply is likely to be low; and did not recommend a regulatory option, including setting maximum levels in food, due to insufficient data on PFOS, PFOA and PFHxS in the general food supply. Alternatively, FSANZ proposed precautionary non-regulatory trigger values expressed as TDIs to assist state and territory regulatory agencies to identify whether further investigation may be required if PFAS is detected in analysed foods at contaminated sites.

In the 24th Australian Total Diet Study Phase 2 (2016), which analysed packaging chemicals including for perfluorinated compounds in a range of foods in the Australian diet, there were no detections for PFOA and only two detections for PFOS out of 50 foods tested. The concentrations of PFOS were at

⁴ A chemical listed on the Australian Inventory of Industrial Chemicals will be able to be introduced into Australia, in accordance with the terms of the listing, by any registered introducer.

⁵ If an industrial chemical is not listed on the Australian Inventory of Industrial Chemicals, and does not fall within one of four other introduction categories ("exempted", "reported", "commercial evaluation" or "exceptional circumstances"), an assessment certificate will be required for the introduction of the chemical to Australia. The Executive Director must refuse to issue an assessment certificate if not satisfied that any risks to human health and the environment can be managed.

very low levels (maximum 1 part per billion) and similar to those reported internationally for the same foods. Foods were sampled from a range of different retail outlets representing the buying habits of most of the community, including supermarkets, corner stores, delicatessens, markets and takeaway shops.

FSANZ is conducting a survey (27th Australian Total Diet Study) to assess the levels of PFAS in the national food supply and estimate dietary exposure for the general Australian population. Sampling is being conducted over two periods in 2019 and 2020 with a final report expected to be published in mid-2021. The report will include a risk assessment comparing estimated dietary exposure for selected PFAS congeners against the relevant TDIs and consider the need for risk management actions, such as new or revised standards or non-regulatory measures.

Drinking water

Drinking water guidelines

The National Health and Medical Research Council (NHMRC) maintains the *Australian Drinking Water Guidelines* (ADWG) which provide an authoritative reference for use within Australia's administrative and legislative framework. This reference is in place to ensure the accountability of drinking water suppliers and state and territory health authorities when they supply drinking water to the Australian community.

Subsequent to FSANZ's report, the Department of Health commissioned the NHMRC to consider the TDIs for PFOA and the sum of PFOS and PFHxS for inclusion in NHMRC's ADWG and *Guidelines for Managing Risks in Recreational Water* (GMRRW). The TDI is used to derive drinking water and recreational water guideline values. The ADWG now has a fact sheet and guidance on how much PFOS, PFHxS and PFOA can safely exist in drinking water. Local Councils and water utilities are able to use this guidance to protect their residents from exposure to these compounds.

The rolling revision of the ADWG ensures they represent the latest scientific evidence on good quality drinking water. This review is overseen by NHMRC's Water Quality Advisory Committee, which provides expert advice to NHMRC's Chief Executive Officer and Council on public health issues related to drinking water quality.

In August 2018, the NHRMC published drinking water guideline values for PFOA and the sum of PFOS and PFHxS as an addendum to the ADWG. The NHMRC published recreational water guideline values in the GMRRW in August 2019 to reflect TDIs and new methodology that uses current Australian estimates of recreational water use.

Providing alternative drinking water

As the ingestion of PFAS-contaminated water has been identified as a primary exposure pathway, Defence provides alternative drinking water to residents, on a case-by-case basis where required, and - in conjunction with local and state and territory governments - provides affected communities with information about ways in which they can reduce their exposure to PFAS.

In May 2018, the Government announced the Supporting Sustainable Access to Drinking Water Program. The program continues Defence's actions in providing a sustainable source of drinking water to properties reliant on bores for drinking water where the water contains PFAS above the Australian

drinking water guideline values set by the NHMRC. This program is being provided to the communities surrounding the Army Aviation Centre Oakey (AACO), and RAAF Bases Williamtown, Tindal and Pearce. These are currently the only sites within Defence PFAS investigation areas where Defence has identified residents who were drinking PFAS-impacted groundwater.

Where possible, eligible residents are connected to reticulated town water, ensuring a long-term supply of safe water. Defence has been working closely with the Hunter Water Corporation in Williamtown and the Toowoomba Regional Council in Oakey to connect properties in those Management Areas to town water. As at 1 October 2019, 36 properties in the Oakey Management Area and 341 properties in the Williamtown Management Area have been connected to town water. Defence has committed to fund, initially for a period of three years from the date of connection, the service fee and usage charges for these residents. This will allow these residents to transition to paying water access and consumption charges for which they were not previously responsible. Defence is also contributing to the costs of town water consumption for a number of residents in the Oakey Management Area.

Ten property owners in the Williamtown Management Area declined a town water connection. Work is underway to supply rainwater tanks to four of these properties and finalise infrastructure improvements to a further property. Five property owners declined assistance of any nature.

In the Katherine region, the provision of rainwater tanks was the preferred option for residents with sole reliance on bore water exceeding PFAS Health Based Guidance Values. Rainwater tanks have been installed at 67 properties in the Katherine region. Consistent with Defence's support for residents in Williamtown and Oakey who received assistance with water usage and service charges for an initial three years, residents in Katherine who received a rainwater tank may have it topped up at Defence expense if required for a period of three years. This would generally be during the dry season, noting it is expected the tanks will be filled by rain during the wet season.

Since the start of the investigation at RAAF Base Pearce Defence has adopted a precautionary approach and has been supplying bottled water to eligible residents who previously relied on bore water as their primary source of drinking water. Packaged water was always considered an interim measure only and part of a precautionary approach while the detailed environmental investigation was ongoing.

Defence advised residents in July-August 2019 that sampling of residential bores had revealed that the majority of the bores do not have PFAS detects above the limit of reporting (that is, if a PFAS compound is present in a sample, it is too low for the laboratory to measure with any degree of certainty). Property owners whose bores do not have detects above the limit of reporting were advised that they are able to use their bores for their household needs in accordance with WA Department of Health and Department of Water and Environmental Regulation guidance. As a result, the provision of packaged water to those properties would cease after three months. Properties with PFAS detects above the limit of reporting would continue to be provided with bottled water until a long-term, sustainable solution is selected and available. Point of Entry systems are emerging as the preferred long-term water supply option. These systems involve the installation of water treatment equipment on the bore to reduce PFAS concentrations in the water.

Recommendation 9

The Australian Greens recommend that, in the absence of national Australian standards, the United States Environmental Protection Agency levels be adopted for drinking water and soil contamination.

Response - Noted

Australian standards have now been established.

In August 2018, the NHRMC published drinking water guideline values for PFOA and the sum of PFOS and PFHxS as an addendum to the ADWG. Further information concerning drinking water guidelines is addressed under the response to *Recommendation 4* of the additional comments from the Australian Greens.

The PFAS NEMP includes environmental criteria for a range of media including soils. Further information on the PFAS NEMP is addressed under the response to *Recommendation 7 of the 2018 Inquiry into the management of PFAS contamination in and around Defence bases.*