

# THE 'FOREVER' CHEMICALS: PFAS AND THE MARITIME INDUSTRY

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On 26 February 2020, lawyers for the Katherine residents affected by a PFAS (per and poly-fluoroalkyl substances) contamination reached an 'in-principle'<sup>1</sup> settlement agreement with the Department of Defence for a total settlement figure of \$92.5 million. The Katherine PFAS Contamination Class Action (**Class Action**) arose as a result of the leaking of PFAS used in firefighting foams at a Department of Defence base, which lead to the contamination of the land and waterways. While the Class Action is not directly associated with the maritime industry it is a clear signal that the problem of the 'forever chemicals,'<sup>2</sup> PFAS, is not going anywhere fast. This article considers PFAS, the concerns with PFAS, PFAS and the maritime industry and finally some practical tips for organisations going forward.

## 1 What are PFAS?

The word 'PFAS' is the group name for products including PFOS (perfluorooctanesulfonic acid), PFOA (perfluorooctanoic acid) and PFHxS (perfluorohexanesulfonate). PFAS are part of a group of manufactured chemicals that have been used since the 1940s in a range of household consumer products including non-stick cookware, food packaging, fabric, and commercial household products like polishes, waxes, paints, or cleaning products. PFAS are also used in some industrial settings, including in certain types of firefighting foams, as PFAS are a proven and "essential firefighting tool."<sup>3</sup>

PFAS are widely used in everyday life in common household products, albeit in small quantities. PFAS have been used over many decades and as a result PFAS are commonly found in the environment. Generally speaking, PFAS are found only at low levels, but in some industrial applications, and particularly in the maritime industry, PFAS may be a significant and ongoing concern.

In the maritime industry, PFAS is commonly used in the fighting of fires or in fire training on board a vessel or maritime facility like a port.

## 2 What is the Law Concerning PFAS

Environmental regulation applies to PFAS. Generally speaking, in Australia, Environmental Law is a matter for the states and territories. At a federal level, there is the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (**EPBC Act**) and the associated regulations. The EPBC Act is the federal government's key piece of environmental legislation, which enables it to join with the states and territories in providing a unified scheme for environmental protection.

Each state and territory has its own legislation and regulations regarding PFAS. For example, in Queensland, the environmental obligations are set out in the *Environmental Protection Act 1994* (Qld) and the *Environmental Protection Regulation 2019* (Qld). All other states and territories have similar obligations in their environmental legislation.

The environmental legislation across the states and territories of Australia includes obligations and duties to prevent environmental harm, nuisance and contamination. Understandably, non-compliance with the legislative and regulatory duties and obligations can lead to a range of regulatory responses ranging from significant fines to Environmental Protection Orders to improvement notices to prosecution. It is important to note that there are potentially significant financial penalties if the legislation is breached. In Queensland, if a prescribed water contaminant is deposited, the environmental regulator may impose a financial penalty of up 8325 penalty units, which is a fine in excess of \$1 million.<sup>4</sup>

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<sup>1</sup> Shine Lawyers, *Katherine PFAS Contamination Class Action* (2020) Shine Lawyers

<<https://www.shine.com.au/service/class-actions/pfas-contamination-class-actions/katherine-contamination>>.

<sup>2</sup> Sarah Gibbens, *Toxic 'forever chemicals' more common in tap water than thought, report says* (2020) National Geographic <<https://www.nationalgeographic.com/science/2020/01/pfas-contamination-safe-drinking-water-study/>> at 24 January 2020.

<sup>3</sup> Department of Environment and Science, *Operational Policy – Environmental Management of Firefighting Foam* (2016)

<[https://www.qld.gov.au/\\_\\_data/assets/pdf\\_file/0025/68470/firefighting-foam-policy.pdf](https://www.qld.gov.au/__data/assets/pdf_file/0025/68470/firefighting-foam-policy.pdf)> at 7 July 2016.

<sup>4</sup> *Environmental Protection Act 1994* (Qld) s440ZG.

Commonly, a PFAS spill occurs when fire-fighting foam is used and then is discharged into the surrounding environment like the sea or waterways. Accordingly, care should be taken when there is a fire on board a vessel or when fire training takes place and a fire extinguisher is used as a spill can occur when that firefighting foam is not contained and stored appropriately and instead is discharged into the environment (whether in a maritime context or not). In the event of the use of firefighting foam on board a vessel at sea there are obviously significant challenges in ensuring that the firefighting foam is contained and stored securely for the remainder of the voyage to ensure that a spill does not occur.

Importantly, in a maritime context if a PFAS spill occurs within 3 nautical miles of the shore it is the state or territory based environmental legislation that will be apply, for example, Queensland's *Environmental Protection Act 1994* or Victoria's *Environmental Protection Act 2017*. If, however, a PFAS spill occurs outside of the 3 nautical miles and within 12 nautical miles of Australian shores, commonwealth legislation should apply. The EPBC Act however, does not appear to deal with PFAS, so there is uncertainty in this area.

### 3 What are the Problems With PFAS?

The main concerns with PFAS that make it such a contentious subject are:

- a) Spread and environmental effects<sup>5</sup>  
PFAS can travel long distances in water (as they are water soluble) and also through the air, which means they can spread significantly from the source of the original PFAS pollutant. Alarmingly, PFAS readily dissolve in soil and as a result can travel long distances and contaminate water sources (including drinking water sources).
- b) Persistence<sup>6</sup>  
Once PFAS have spread through water or air they are very persistent in the environment as they do not degrade as other materials do in the environment. This is why they have been nicknamed the 'forever chemicals.' Disturbingly, the concentration of PFAS increases with time in fish, animals, and humans.
- c) Uncertain human health effects<sup>7</sup>  
The science and understanding of PFAS is ongoing and evolving. Accordingly, the effects of exposure of humans to PFAS are not yet fully understood. Currently, PFAS are believed to cause health effects to humans including cancer, reproductive, developmental, liver and kidney problems. For this reason, human exposure to PFAS should be minimised where possible.
- d) Limited options for resolution<sup>8</sup>  
Unfortunately, there is no clear solution to dealing with a PFAS contamination and potential solutions are still developing and evolving. As a result, there are limited options available when there is a PFAS contamination. For example, there are limited facilities that are licensed to accept PFAS contaminated waste and the facilities that are available can be costly.

There is a plan to phase out the use of PFAS chemicals, especially in firefighting foams in Australia and globally. It appears that phase out of use of some PFAS chemicals is currently under consideration by the Australian government. Internationally, other countries also appear to be adopting phase out plans for some PFAS chemicals including New Zealand and also countries in Europe.

Specifically, in Australia, the states and territories have come together to form a 'PFAS National Environmental Management Plan'<sup>9</sup> (**Plan**). In general terms, the Plan provides guidance about PFAS chemicals, PFAS monitoring, storage and useful case studies. Interestingly, despite the existence of separate legislation in each state

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<sup>5</sup> Government of Western Australia, Department of Environment Regulation, *Interim Guideline on Assessment and Management of Perfluoroalkyl and Polyfluoroalkyl Substances*, (February 2016)  
< <https://www.der.wa.gov.au/images/documents/your-environment/contaminated-sites/guidelines/Guideline-on-Assessment-and-Management-of-PFAS-.pdf>>.

<sup>6</sup> Heads of EPAs Australia and New Zealand, *PFAS National Environmental Management Plan* (January 2018),  
< [https://ref.epa.vic.gov.au/your-environment/land-and-groundwater/pfas-in-victoria/~media/Files/Your%20environment/Land%20and%20groundwater/PFAS%20in%20Victoria/PFAS%20NEMP/FINAL\\_PFAS-NEMP-20180110.pdf](https://ref.epa.vic.gov.au/your-environment/land-and-groundwater/pfas-in-victoria/~media/Files/Your%20environment/Land%20and%20groundwater/PFAS%20in%20Victoria/PFAS%20NEMP/FINAL_PFAS-NEMP-20180110.pdf) >

<sup>7</sup> United States Environmental Protection Agency, *Basic Information on PFAS* < <https://www.epa.gov/pfas/basic-information-pfas>>

<sup>8</sup> Elizabeth Wild, Sarah Mansfield and Stephanie Willis, *The Perils of PFAS: Navigating Civil Liability Claims* (March 2020)

< <https://www.nortonrosefulbright.com/en-au/knowledge/publications/a26dfa34/the-perils-of-pfas-navigating-civil-liability-claims>>.

<sup>9</sup> Heads of EPAs Australia and New Zealand, above n 6.

and territory on this topic, the Plan demonstrates how the states and territories are adopting a united, clear and consistent approach to the environmental regulation of PFAS in Australia.

#### **4 PFAS and the Maritime Industry**

In the maritime context, PFAS are frequently used in firefighting foams. PFAS can therefore be released into the environment through use of the foam in a fire or in fire training. Fires and fire training occur both on vessels, offshore facilities, and also at onshore facilities i.e. like ports, marinas or berths. For obvious reasons, the treatment of PFAS in the maritime and oil & gas industries requires consideration.

Safety at sea is a paramount consideration, and in the event of a vessel fire at sea, the use of a firefighting foam containing PFAS may be essential to protect the lives of all on board. Understandably it is significantly more difficult to contain firefighting foam on board a vessel than it is on land however, despite this difficulty, vessels still need to ensure that any 'adverse environmental effects could be reduced while still addressing the priority of maintaining safety at sea.'<sup>10</sup>

Ultimately, the master of a vessel, the ship's owner, the vessel's insurer and the offshore facility operator are responsible for making good any damage that the vessel has caused in Australian waters. Accordingly, the prudent approach is to have a clear and effective plan in case firefighting foams containing PFAS enter the marine environment.

#### **5 What About MARPOL?**

The International Convention for the Prevention of Pollution from Ships (**MARPOL**) is familiar to maritime lawyers as regulating pollution from ships. MARPOL is the primary international convention that covers preventing and minimising pollution of the marine environment by vessels, either as a result of operational or accidental causes. As such, MARPOL has six annexures that cover pollution caused by substances including oil, noxious liquid substances, sewage, garbage and air pollution. PFAS does not appear to be a substance that is covered by MARPOL, which nowadays appears to be a surprising omission given that PFAS, when discharged into the sea or a waterway, is a pollutant that has a permanent and long-lasting effect on the environment. It is important to remember that the MARPOL Convention was adopted in November 1973, just short of 50 years ago and the potential harmful nature of PFAS was probably not at this time realised.

#### **6 Practical Tips**

PFAS presents an ongoing problem for the maritime industry. Despite the apparent absence of international and Commonwealth regulation of PFAS, state and territory environmental regulators are leading the charge on dealing with PFAS as a persistent pollutant. Maritime organisations need to ensure that they adopt a proactive approach to dealing with PFAS including planning for the unfortunate circumstance of a PFAS spill event. A 'do nothing' approach simply will not suffice. There are a number of practical tips provided by state environmental regulators for maritime organisations to implement, including forward planning, incident management and waste disposal.<sup>11</sup>

Firstly, the aim of forward planning is to manage and prevent, as far as possible, the release of any substances like, firewater, containing PFAS into the environment. This may be done by establishing procedures to capture and hold firewater on board the vessel. It is strongly recommended that organisations make and have appropriate procedures in place setting out how to use, handle and store firewater that contains PFAS onboard vessels.

Secondly, incident management is crucial to prevent, as far as possible, the discharge of PFAS or water containing PFAS into a sea or a waterway unless of course it is unavoidable, for example, taking all reasonable and practicable measures during and after any incident to prevent any discharge into the sea. The prudent approach would be for all organisations to ensure that sufficient and effective incident management procedures are in place in the event that a PFAS spill takes place. This not only provides a procedure for what to do in the event of an incident but also demonstrates to the state or territory environmental regulator that the organisation takes their environmental obligations seriously and has sufficient plans in place.

Finally, any waste or firewater containing PFAS must be disposed of to an appropriately licensed onshore facility that is capable of treating and disposing of the waste appropriately. Generally, incineration is required. The

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<sup>10</sup> Department of Environment and Science, above n 3, pages 11 and 12.

<sup>11</sup> Ibid.

prudent approach would be to have effective procedures in place for waste disposal and to maintain regular contact with a licensed onshore facility who is able to deal with any waste containing PFAS. Organisations in the maritime industry should also consider their plans in the event that they are required to store PFAS on one of their sites for a period of time, until a licensed PFAS waste facility can collect and dispose of it.

## **7 Conclusion**

The crucial legal issue with PFAS is its long tail liability and potential for claims to arise in the future. Currently, we do not know the full extent and long-term effects that the use of PFAS has had on humans or the environment and this will undoubtedly become more apparent with time. What this means is that in the future, expensive and unexpected claims could arise for maritime employers who have previously used PFAS as part of their business. This could arise, for example, if seafarers who were exposed to PFAS during fire training as part of their employment then suffer a medical condition or loss as a result of their previous exposure to PFAS and make a claim at some unknown point in the future.

Ultimately, PFAS are ‘forever chemicals’ and their effects are likely to be long-lasting. For this reason, it is crucial for the maritime industry to manage the potential for long tail liability going forward by adopting clear policies, procedures and plans on how to use, store, handle and dispose of PFAS in accordance with relevant state-based environmental regulator’s guidance.