PFAS, Fire Protection and a Global Rise in Legal Cases

Per- and Poly-fluoroalkyl Substances (PFAS) entered mainstream public consciousness with the release of the Hollywood film Darkwaters. Every day, news articles announce previously unknown detections of PFAS in drinking water supplies or identify new consumer products as potential sources of PFAS. Over 6,400 PFAS-related lawsuits have been filed globally since 2005[1], and numbers are rising. Here, we will introduce PFAS, its use by fire teams, its regulation, and some of the types of legal cases that are arising.

What are PFAS, and why are they of concern?

Sometimes called “forever chemicals,” PFAS are a diverse and large group of synthetic fluorinated organic chemicals (12,000+)[2]. They include significant diversity in their environmental fate and transport together with toxicity, such is part of the problem, as few have been studied in detail. They are, however, united structurally in having a fluorinated carbon chain that may be fully (per) or partially fluorinated (poly). These carbon-fluorine bonds are the strongest known in organic chemistry.

The bonds impart thermal, chemical, and biological stability plus oil and water repellence. These properties have made them hugely beneficial to society, and hence they have been used in a wealth of products and processes since industrial production in the late 1930s[3]. However, these very same properties also result in their extreme persistence in the environment. They are known to damage ecosystems and to be moderately or highly toxic to human health.

A recent study, which is likely underestimated, estimates the health-related costs from PFAS across Europe to be EUR 52-84 billion annually[4]. Indeed, many studies have suggested links to a variety of health issues, including high cholesterol, ulcerative colitis, thyroid disease, kidney and testicular cancer, and pregnancy-induced hypertension[5]. Two of the most discussed PFAS species, Perfluorooctane Sulfonate (PFOS) and

[1] https://www.avivainvestors.com/en-gb/views/aiq-investment-thinking/2023/03/forever-chemicals/
[2] https://www.claire.co.uk/home/news/1782-pfas-bulletin
[3] https://pfas-1.itrcweb.org/wp-content/uploads/2020/10/history_and_use_508_2020Aug_Final.pdf
[4] https://www.ricardo.com/media/jrqolnhf/pfas-restriction-proposal-ricardo-version.pdf
[5] https://www.bbc.co.uk/news/science-environment-60761972

Perfluorooctanoic Acid (PFOA), have just recently been classified in Europe as carcinogens[6]. In humans, elimination from the body is slow (years)[7].

One particular use for PFAS has been in fire suppression systems and aqueous film-forming foams (AFFF), used in fighting class A (until specific foams were developed) and class B fires[8]. As a result, civilian and military airfields and fire training areas (FTA) are commonly considered potential point sources of PFAS contamination. From such locations, PFAS dissolved in water has been seen to travel in drainage or groundwater plumes. These plumes can travel several miles from their source, far further than conventional hydrocarbon contamination such as MTBE[9]. These can negatively affect surface water bodies or potable abstraction wells.

Indeed, the repeated use of AFFF has resulted in FTAs contaminated with high concentrations and a diversity of PFAS types within their infrastructure, surrounding environment and in surface water runoff. It is also now known that the porous nature of concrete can allow PFAS to bind and slowly release years or decades after first AFFF contact[10]. This leaching over time, can act as a long-term secondary source of contamination via drainage infrastructure and site run-off. One study of an AFFF contaminated concrete pad at an FTA is estimated to impart PFOS in runoff water for more than 200 years[11]. Alternatively, the use of AFFF at large single fire has on occasion, also resulted in long-term surrounding aquifer contamination[12] (e.g. at Buncefield).

An example of public concern in the UK from AFFF has arisen at Jersey Airport. Here, AFFF was used in the 1990s[13]. In 1993, PFAS was detected in the drinking water boreholes of the adjacent properties. The use of the AFFF was stopped[13]. In 2022, the Jersey Government tested and identified PFAS in the blood of the neighbouring residents at concentrations considered unacceptable[13]. Experts recently recommended that blood treatment now be offered to all those affected[14].

With growing public concern, improvements in scientific understanding and mounting evidence of health implications, PFAS is increasingly becoming the focus of ever closer regulatory scrutiny.

The Regulation of PFAS

The global position in relation to regulation of PFAS is developing rapidly.

Early AFFF typically contained the long-chain PFAS compounds PFOS and PFOA. PFOS AFFF was made in the US from the late 1960s through to 2002, sold under the trademark “Light Water”[15]. While it has now been phased out, legacy PFOS AFFFs remain the dominant source of PFAS at AFFF-impacted sites due to their environmental persistence.

In response to regulatory restrictions, long-chain PFAS in firefighting foams have been substituted with short-chain modern alternatives[16], also known as fluorotelomer foams and C6 foams. These have been regrettable substitutions. Several have been discovered to be similarly highly persistent and mobile in the environment,

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[6]https://www.iarc.who.int/news-events/iarc-monographs-evaluate-the-carcinogenicity-of-perfluorooctanoic-acid-pfoa-and-perfluorooctanesulfonic-acid-pfos/
[7] https://www.cdc.gov/biomonitoring/PFAS_BiomonitoringSummary.html
[8] https://www.ewg.org/news-insights/news/2020/04/its-time-switch-pfas-free-firefighting-foams
[9] https://www.claire.co.uk/home/news/1155-cl-aire-publishes-new-technical-bulletin-tb19-pfass
[10] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10448196/
[11]https://www.researchgate.net/publication/358170153_Release_of_perfluoroalkyl_substances_from_AFFF-impacted_concrete_in_a_Firefighting_Training_Ground_FTG_under_repeated_rainfall_simulations
[12] Troop P. (2006). The public health impact of the Buncefield oil depot fire. Health Protection Agency: London.
[13] https://www.bbc.co.uk/news/world-europe-jersey-66361242
[14] https://www.bbc.co.uk/news/world-europe-jersey-67175054
[15] https://pfas-1.itrcweb.org/wp-content/uploads/2023/10/AFFF_PFAS_FactSheet_Sept2023_final.pdf
[16] https://echa.europa.eu/documents/10162/28801697/pfas_flourine-free_alternatives_fire_fighting_en.pdf/d5b24e2a-d027-0168-cdd8-f723c675fa98

bioaccumulating within food crops such as fruit[17]. Furthermore, various of these poly-fluorinated substitutions are now known to biotransform (breakdown) into per-fluorinated compounds, including the notorious PFOS and PFOA[18], thereby unintentionally creating secondary long-term sources.

On 10th April 2024, the US EPA announced drinking water standards for six PFAS to prevent exposure via drinking water for around 100 million people, aimed at preventing thousands of deaths, and reducing tens of thousands of severe illnesses attributable to PFAS[19]. Non-enforceable Maximum Contaminant Level Goals (MCLGs) for these PFAS have been set at zero in drinking waters for PFOS and PFOA. Enforceable levels at just 4.0 parts per trillion (ppt) for these two species have also been set[19]. These are incredibly low concentrations when seeking to monitor, assess, and remediate with costs envisaged in the billions of dollars.

In addition, the EPA announced measures to place accountability for cleanup on parties which have released certain categories of PFAS into the environment, including manufacturers and certain users of PFAS. Numerous states have separately enacted or proposed regulations specifically restricting the use of PFAS in firefighting foams and firefighter apparel.

In the European Union, a very small group of PFAS are already regulated. However, the European Chemicals Agency (ECHA) is presently considering thousands of responses to a 2023 consultation on widespread restrictions on the use of PFAS in Europe. Of specific interest to the ECHA is a proposed restriction of PFAS in firefighting foams. The ECHA has previously commented that fluorinated firefighting foams have been the cause of many cases of contamination of soil and drinking water in Europe. Industry will be closely watching the next announcements, which are expected later in 2024.

In the UK, the regulatory picture is fragmented and, following Brexit, is not legally bound to follow the path of the European Union. Nonetheless, regulation of PFAS is expected to increase in volume in the coming years.

The Environment Agency and Health and Safety Executive's (HSE) REACH work programme for 2023-24 has set out plans for evidence gathering and stakeholder engagement on restricting the use of PFAS in firefighting foams, textiles, furniture and cleaning products. As part of this initiative, on 4 April 2024, the HSE launched a call for evidence on the use of PFAS in firefighting foams, which closes on 4 June 2024. Further clarity on any proposed regulatory change arising from this consultation is expected later in the year.

How is PFAS litigation developing?

Many will be familiar with class actions as a feature of the US legal system, allowing individual claimants to bring legal proceedings as a group. A large proportion of PFAS-related claims brought in the US are class actions.

The use of PFAS in firefighting foams has been the subject of multiple lawsuits in the US. For example, in 2021, residents of Peshtigo, a town in Wisconsin, reached a $17.5 million settlement with Tyco Fire Products and others over contamination alleged to have been caused by a nearby fire training facility. In April 2024, Tyco was reported to have agreed to a $750 million settlement with US public water systems in relation to alleged PFAS contamination from firefighting foam. In 2023, the chemicals manufacturer, 3M, agreed to pay $10.3 billion to US public water providers who alleged that firefighting foam sprayed over fields or at airports had contaminated water supplies. Firefighters are also reported to have issued claims against manufacturers, alleging that they suffered harm caused by PFAS in protective equipment.

Historically, the legal systems in Europe and the UK have been less geared towards class actions (which are also commonly known as collective actions). However, the cost of litigation often creates a barrier for would-

[17] Blaine, A.C., Rich, C.D., Sedlacko, E.M., Hyland, K.C., Stushnoff, C., Dickenson, E.R., Higgins, C.P. 2014. Perfluoroalkyl acid uptake in lettuce (Lactuca sativa) and strawberry (Fragaria ananassa) irrigated with reclaimed water. Environ Sci Technol. 48(24): 14361-8.
[18] https://www.claire.co.uk/home/news/1155-cl-aire-publishes-new-technical-bulletin-tb19-pfass
[19] https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas

be claimants, and legislators are increasingly searching for ways to make the process more cost effective. One way of doing this is to allow claimants to benefit from the cost savings which can come from litigating as a group. Union-wide laws have been introduced to ensure national legal systems facilitate these types of claims.

Although not yet reaching the scale of litigation seen in the US, PFAS related claims have been brought in several European member states, including Sweden, the Netherlands, France and Belgium, by residents alleging contamination caused by industrial facilities using PFAS. Sites of possible PFAS contamination have been identified across Europe, including where firefighting foam has been deployed at airports.

Many commentators expect that the trend towards PFAS litigation seen in the US and Europe will be reflected in the UK over the coming years. This is, in part, due to growing public and media interest in PFAS, coupled with increased focus on the topic from various regulators. Additionally, a number of recent judicial decisions have had the effect of widening access to collective redress mechanisms, a trend which is expected to continue.

The litigation funding market is likely also to play a part in the development of the PFAS claims landscape in the UK. Some claimant law firms fund collective actions through the use of conditional fee agreements (also known as no-win-no-fee arrangements) whereby some or all of the firm's fee is payable only following a successful outcome. Claimant firms often advertise upcoming claims, including through social media, which allows claimants to quickly and conveniently join group proceedings.

Specialist litigation funders may also be engaged to fund the up-front costs of litigation, in return for a fee if the claim succeeds. In general, environmental claims, including claims related to PFAS, are expected to be a growth area for litigation funders in coming years and this, in turn, is likely to fuel an increase in such claims.

Claims concerning PFAS contamination will be far from straightforward with many evidential and legal challenges. Establishing a causative link between PFAS and harm suffered is likely to prove difficult for claimants, due to the diversity of PFAS substances and lacking research. Establishing harm in individual cases is likely to be problematic.

What action should businesses/organisations be taking?

There are several steps that can be taken to understand PFAS risk positions and to prepare for future change.

First, fire services should map their risks, by keeping a record of which PFAS are being used in their supply chains. This can prove challenging, because the class of chemicals is large and naming conventions vary, but it allows planning for future regulatory change and reduces the risk of inadvertent breaches of new rules. Supply chain disruption can also be anticipated and mitigated in advance.

PFAS risk assessments should be integrated into due diligence programmes for commercial transactions, such as mergers and acquisitions. Existing contractual arrangements should be checked for apportionment of risk and amended where possible.

While many insurance policies now feature exclusions for PFAS risk, specialist coverage may still be available in some markets. Existing and historic policies should be carefully checked and brokers engaged to obtain the most effective coverage for the future.

Finally, early engagement with legislators and regulators is key. With a number of important elections upcoming this year, the industry is fighting for the attention of decision-makers on many new and emerging issues. Stakeholders stand the best possible chance of having their views heard if a dialogue is opened and maintained when changes are first proposed. This can prove much more challenging if feedback is provided only late in the day, such as when new legislation has been drafted.

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