



PFAS ●

The forever chemicals

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Information Group

PFAS (Per- and polyfluoroalkyl substances) are the newest contaminants of concern, titled as forever chemicals. PFAS is a broad group of over 12,000 synthetic chemicals and widely used in industrial and consumer products and the potential negative impacts on human health have been known for over 25 years. ^(1,2,3)

PFAS was first developed in the 1930s and was huge commercial success. Their resistance to water, stains, and heat made them perfect for a wide range of products and application. Non-stick frying pans, firefighting foam, jackets, greaseproof paper, and printing are just a few examples of their uses. ^(1,2,3)

However, these exact qualities meant that they are extremely persistent in the environment, usually highly mobile in groundwater, and able to bioaccumulate within humans and some plants. This along with the widespread use of PFAS is now a cause for concern. PFAS has slowly diffused into our groundwater, rivers and streams, and impacted some of the UK's drinking water. ^(1,2,3) The Environment Agency (EA) stated in a 2021 report, following five years of sampling, that 'it is likely that some PFAS are widely present in environmental waters.'

This concern led to the Drinking Water Inspectorate (DWI) sending a letter to all water and sewerage companies providing information and guidance on PFAS in 2021 and 2022. ⁽⁴⁾

Are PFAS harmful?

There are so many PFAS that our understanding is incomplete. However, PFAS is widespread and certain PFAS have been associated with adverse effects in animals and humans. ^(1,2,3) Recent studies have shown potential adverse effects on the liver, immune system and reproduction, and are potentially carcinogenic in humans and animals. ⁽⁹⁾

Some of the health implications are highlighted in the DuPont case, in which an independent scientific panel identified a probable link between contaminated water and certain cancers and diseases ⁽⁵⁾. This is dramatised in the film Dark Matters and certainly worth a watch.

What are the key sources?

Unfortunately, it's everywhere. The widespread use of PFAS has seen to this. Though the following sources may present a more significant risk. ^(1,2)

Source		
Firefighting foam (fire stations, testing areas, airports, major fire locations)	Metal plating / electroplating sites	Printing and photographic development industries
Textiles, upholstery, carpets, and leather products (genuine and artificial)	Electronics industries	Aviation industries
Paper and cardboard manufacturing	Fluorochemical, rubber and plastics industries	Surface cleaners, car waxes and treatments
Coating, paints and varnish industries	Wastewater treatment plants	Landfills
Cosmetics manufacturing		

PFAS, used in firefighting foam, was extensively used at Jersey airport's fire training ground in the 1990s. Unfortunately, this leaked into groundwater causing a plume of PFAS. This then contaminated various private water supplies in the area. ⁽⁶⁾

While the Government of Jersey has not stated outright that this has caused health impacts, it does state 'In 2022, one off blood testing was provided for a group of Islanders who may have been affected by the historic use of PFAS at the airport.'⁽⁶⁾

Consequently, Jersey residents are considering group legal action, though the health impacts do require further research and monitoring. ⁽⁷⁾

How does this fit in with current contaminated land legislation and guidance?

Currently, PFAS is regulated across multiple legislative regimes ⁽⁸⁾ with limited guidance. This has led to some uncertainty within the property industry on how to risk assess PFAS. But as our understanding of PFAS evolves so will our legislative regimes and guidance.

Already, DWI and CL:AIRE have published guidance with DWI adopting a tiered approach with guideline values for certain PFAS. The EA has an active program to understand the scale and nature of PFAS contamination and this may lead guidance for regulators and how 'forever chemicals' should be applied to Part 2A of the Environmental Protection Act 1990. CIRIA also has an active program to develop technical guidance on the investigation, assessment and remediation of certain PFAS. ⁽⁹⁾

Summary

PFAS will be with us for a long time and we are still at the early stages of understanding the health and legal risks. Though it is likely that PFAS is widely present in our environment with certain former and current land uses representing a greater risk.

As our understanding progresses, it is likely that our legislation and guidance will evolve to meet the challenges. So, watch this space.

Sources

- (1) CL:AIRE Technical Bulletin TB22, An overview of the uses of PFAS to assist with identification of sites of concern, March 2023.
- (2) CL:AIRE Technical Bulletin TB19, Managing risks and liabilities associated with Per- and Polyfluoroalkyl Substances (PFASs), February 2019.
- (3) Environment Agency, Poly- and perfluoroalkyl substances (PFAS): sources, pathways and environmental data, August 2021.
- (4) Drinking Water Inspectorate, PFAS and Forever Chemicals, www.dwi.gov.uk/pfas-and-forever-chemicals
- (5) Time, Dark Waters Tells the True Story, November 2019, www.time.com/5737451/dark-waters-true-story-rob-bilott
- (6) Government of Jersey, PFAS in Jersey, www.gov.je/Environment/ProtectingEnvironment/Water/pages/pfas.aspx
- (7) BBC, Jersey residents affected by PFAS consider legal action, August 2023, www.bbc.co.uk/news/world-europe-jersey-66382777
- (8) Fieldfisher LLP, PFAS: UK Regulatory Snapshot, April 2023, www.fieldfisher.com/en/insights/pfas-uk-regulatory-snapshot
- (9) Nathaniel, P., and Grey, S. A multi-disciplinary response to the challenges of the PFAS universe, June 23, Journal of the Institute of Environmental Science.

PFAS is covered in Landmark RVR reports

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