



# PFAS Cleaning for Fire Suppression Equipment & Systems

A dynamic regulatory environment has motivated foam users to transition from foams containing PFAS (C8/ C6) AFFF to fluorine-free firefighting foams, now widely available and used for effective fire protection.

### Contaminant Risk

Per- and polyfluoroalkyl substances (PFAS) adhere to fire suppression system surfaces in contact with aqueous film forming foams (AFFF) containing C8/C6 PFAS to form water resistant layers in foam systems. Replacing existing AFFF in foam equipment and suppression systems requires removal of residual PFAS because these compounds can rebound into replacement fluorine free firefighting (FFF) foams causing contamination and a risk of continued environmental liability.

### A Successful, Biodegradable Solution

Arcadis developed an effective biodegradable cleaning agent (FluoroFighter™) to remove PFAS buildup in fire suppression systems previously containing C8/C6 AFFF. This, in conjunction with Arcadis' proven procedure for PFAS cleaning applications will remove PFAS by disrupting self-assembled layers on foam-wetted surfaces, providing assurance that PFAS impacts in newly

installed foam are minimized. Using an effective cleaning agent in place of water reduces foam transition costs by reducing or eliminating time-consuming re-work, mitigating contamination of replacement foams and avoiding widespread component replacement.

Additionally, Arcadis uses innovative technologies to regenerate the biodegradable cleaning agent for reuse, minimizing disposal costs.

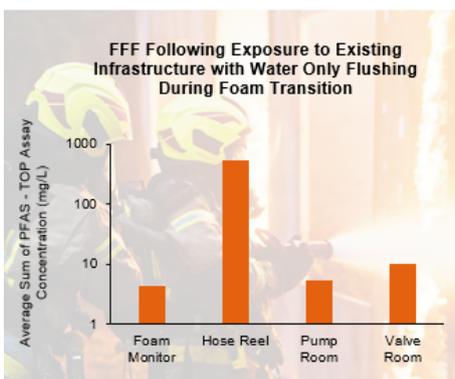
### Reducing Complications and Uncertainties

Transitioning away from firefighting foams containing C8/ C6 PFAS requires a combination of engineering skills and knowledge of environmental science and policy.

### Arcadis Foam Transition Services

Arcadis offers a broad scope of services for foam transition including:

- Fire system upgrade planning and permitting
- Replacement foam selection & quality assurance
- Fire system design modifications and upgrades
- Testing fire suppression system components for PFAS residual levels
- Containment system upgrades
- Piping and storage system cleaning
- Waste characterization and disposal
- Proportion testing to meet NFPA requirements
- Reporting and O&M manual updates



With water only flushes on the fire suppression system, PFAS buildup rebounded at up to 1.6 g/L in fluorine-free firefighting foams

## About Arcadis

Arcadis is the world's leading company delivering sustainable design, engineering, and consultancy solutions for natural and built assets. Applying our deep market sector insights and collective design, consultancy, engineering, project and management services we work in partnership with our clients to deliver exceptional and sustainable solutions. We are more than 27,000 people, in more than 70 countries, dedicated to improving quality of life.

[www.arcadis.com](http://www.arcadis.com)

## Related Content



PFAS Solutions Site

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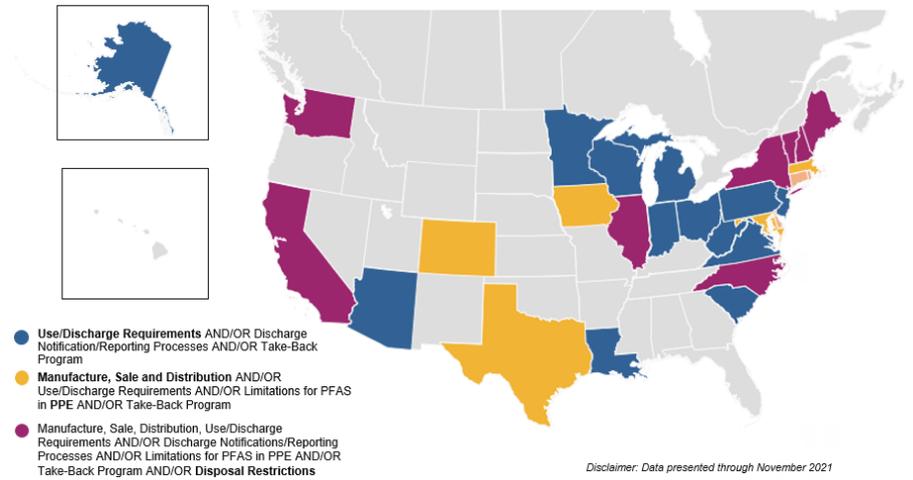
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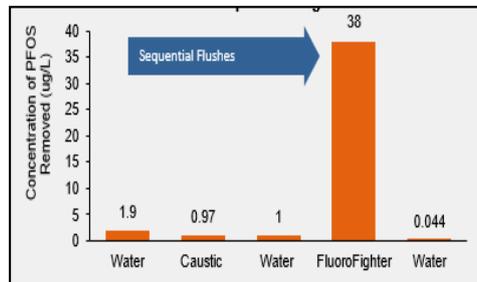
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## Regulatory Drivers for Foam Transition



## Pipe Cleaning Trial



FluoroFighter™ was most effective at removing PFAS from the AFFF impacted system.

Increasing regulatory attention on PFAS shows that successful suppression system cleanout is growing in importance; however, the development of a foam transition program that includes PFAS cleaning can be daunting. The Arcadis team, including leading PFAS experts, works as your trusted partner to develop a foam transition program and execute PFAS cleaning activities that will reduce the complication and uncertainty around regulation and equipment reuse.

## Project Experience

Issue	Solution
PFAS rebound into newly installed fluorine free foam in airport hangar fire suppression system	Perform suppression system cleanout using Arcadis Cleaning Agent FluoroFighter™
Foam Characterization inadequate for total PFAS measurement	Advanced analytical techniques (total organic fluorine (TOF) and total oxidizable precursor (TOP) assay) employed to quantify total PFAS.
AFFF containing C6/C8 PFAS release due to emergency response	Optimization of volume-reducing technology such as fractionation in conjunction with absorptive media (e.g. GAC and ion exchange resin).

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