

## Mobile Cleanout of AFFF and PFAS in Wastewater and Fire Suppression Systems Using the PerfluorAd Process

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**Background/Objectives.** The emergence of per- and polyfluoroalkyl substances (PFAS) as contaminants of concern has created an operational challenge for cleaning out aqueous film forming foams (AFFF) in water treatment facilities and fire suppression systems. Due to decades of extensive use, AFFF residuals are being identified in soils, aquifers, and surface waters threatening ecosystems and their environments. The use of water rinsing alone does not remove PFAS from fire suppression systems, and therefore there is the risk of recontamination with residual PFAS during the transition to fluorine-free firefighting foams.

Projects funded by the Environmental Security Technology Certification Program, the National Defense Center for Energy and Environment, the Connecticut Department of Energy and Environmental Protection and a major west coast international airport were performed for removal of PFAS from firefighting systems and AFFF-contaminated waters by precipitation via the use of the **PerfluorAd**® technology. PerfluorAd is a plant-based, biodegradable, novel liquid blend tailored to precipitate and remove PFAS chemicals from contaminated waters.

**Approach/Activities.** The **PerfluorAd**® technology uses flocculation, sedimentation, and filtration followed by sorptive media polishing to remove >99% of PFAS inside firefighting, storage and conveyance systems and stored wastewater. The **PerfluorAd**® technology is especially effective at removing PFAS from the inner wetted walls of tanks, pipes, and pumps associated with these systems. Further, the **PerfluorAd**® technology can treat the PFAS in the effluent rinsate. This technology has recently been performed using mobile, 15-gallon per minute continuous flow and 1,000-gallon batch treatment systems for removal of AFFF/PFAS from firefighting trucks and trailers, storage and conveyance systems, and collected farm wastewater.

**Results/Lessons Learned.** Project results, including rebound studies, will be presented for the treatment of AFFF/PFAS-contaminated firefighting systems and wastewater to less than 2 parts per trillion (ppt) and less than 70 ppt of combined PFOS and PFOA, respectively. Department of Defense installations, municipal fire departments, airports, and commercial and industrial manufacturing sectors will benefit by achieving the recommended Environmental Protection Agency lifetime health advisory while minimizing process media, generating less waste, and contributing to treatment cost savings when compared to conventional treatment methods or incineration.