

## **Advancing the Aqueous Film Forming Foam (AFFF) Deployment Pathway: Recommendations for Responsible Use & Management in North Carolina**

### **ABSTRACT:**

Per- and polyfluoroalkyl substances (PFAS), known as “forever chemicals,” characteristically bioaccumulate within organisms and do not naturally degrade in the environment, consequently amplifying their potential to cause adverse ecological and health effects. Aqueous Film-Forming Foams (AFFFs), commonly deployed in firefighting to extinguish flammable liquid and gas fires (Class B), contain PFAS. Research has shown the contamination of these chemicals in drinking water and other environmental media to be connected to numerous health impacts, including altered immune function, developmental disorders, and cancers. Because AFFF deployment has been identified as a critical cause for PFAS contamination in North Carolina, there is an urgency for practical and regulatory intervention to address AFFF contamination and exposure across the state.

As such, this project characterizes the AFFF lifecycle by charting the “AFFF Manufacturing to Disposal Pathway” to better understand the full scope of AFFF regulation and pollution risks. Upon reviewing literature and legislation, and conducting interviews with regional experts in waste management and firefighter response, it was found that both manufacturers and firefighting facilities are phasing out AFFF production and use, respectively. However, significant oversight exists in the cleanup and disposal of AFFFs, reflecting an incomplete consideration of AFFFs’ legacy of environmental health impacts. Thus, this poster explores the imperative transition to PFAS-free foams, outlines the potential for federal statute to necessitate this transition, and proposes future directions for assessing the practical feasibility of comprehensively regulating the AFFF Pathway, all in an effort to identify how to sustainably fight Class B fires in the future.