State of Connecticut AFFF Take-Back Program

Draining and Rinsing AFFF from Municipal Onboard Systems

May 2022

Overview of PFAS AFFF Take-Back Program

To reduce public health and environmental risks from releases of per- and polyfluoroalkyl substances (PFAS), the State Bond Commission released legislatively authorized funds in July 2020 to advance the State's PFAS Action Plan with respect to discontinuing use of PFAS-containing firefighting foam, often referred to as Aqueous Film-Forming Foam (AFFF). In April 2021, the State initiated the AFFF Take-Back Program focused on the collection and safe disposal of containers of AFFF stored at municipal and state fire departments. This effort was jointly managed by the Department of Emergency Services and Public Protection, Commission on Fire Prevention and Control (DESPP-CFPC) and the Department of Energy and Environmental Protections (DEEP). As of April 2022, over 35,000 gallons of containerized AFFF concentrate was collected from more than 250 municipal fire departments and safely disposed at a secure facility licensed to receive PFAS waste.

On July 13, 2021, Connecticut state law banned training with firefighting foam containing intentionally added PFAS, commonly known as AFFF, AR-AFFF, FFFP, AR-FFFP, FP, and FPAR ("Fluorinated Foam" or collectively, "AFFF" for simplicity). The law also banned most other uses of Fluorinated Foam effective October 1, 2021, with some exceptions. See Public Act 21-191 for details.

AFFF Fire Apparatus Decontamination Demonstration Project

Because PFAS surfactants in AFFF coat the walls of storage tanks and associated plumbing within foam systems onboard fire trucks, cleaning is needed to remove AFFF from these surfaces. In Summer 2021, DEEP began an AFFF decontamination demonstration project to evaluate the feasibility and effectiveness of two cleaning agents in removing residual PFAS from fire apparatus, including the state's eight regional foam trailers. The results of this demonstration project were intended to inform development of a cost estimate and standard operating procedure for the future draining and cleaning of AFFF from municipal fire apparatus with onboard foam systems.

Thus far, three foam trailers and three fire trucks have been cleaned, removing most of the AFFF and associated PFAS. With multiple treatments the cleaning agents can remove over 99% of PFAS compared to the high levels found in typical AFFF concentrate. Despite this promising news, the relatively small amount of PFAS remaining within the onboard storage tank and piping after cleaning, though significantly less than the amount found in the old AFFF concentrate, can cross-contaminate new fluorine-free foam

(F3), potentially at a level that may still present a risk to human health and the environment if the new foam were to be deployed.

It is important to note that there are various approaches and techniques to rinse or clean onboard and fixed fire suppression systems prior to switching from AFFF to a F3 concentrate. **However, no single cleaning method has yet been proven to be 100% effective in eliminating residual PFAS concentrations from fire apparatus.** Importantly, federal guidance on best management practices for cleaning municipal fire apparatus that previously contained AFFF and minimum PFAS clean up levels is not yet available.

From a cost perspective, use of proprietary cleaning agents is proving to be more expensive than initially anticipated, and additional funding would be needed to clean the approximately 400 municipal fire apparatus with onboard AFFF systems statewide. With the remaining state funding that is available, DEEP and DESPP-CFPC plan to prioritize the collection and disposal of AFFF concentrate drained from municipal onboard systems to prevent future accidental releases of Fluorinated Foam. The rinsing or full decontamination of the onboard systems is not being performed by the State as part of this effort. Additional information on scheduling the collection of AFFF drained from onboard AFFF systems will be forthcoming.

Recommendations for Municipal Fire Services

DESPP-CFPC and DEEP are recommending the following additional actions to municipal fire services with respect to AFFF remaining in onboard systems:

- ***If AFFF concentrate has not yet been drained from onboard systems, lock-out or remove discharge levers from the pump panel to prevent accidental use/discharge of PFAS-containing firefighting foam.***
- ***Utilize replacement fluorine-free foam (F3) directly from its shipping container using an external eductor when responding to Class B emergency incidents.***
- ***Drain AFFF remaining in onboard systems for future collection and disposal by the State, as funding allows.***
    - **IF A FIRE DEPARTMENT DECIDES TO REUSE THE ONBOARD FOAM SYSTEM**, ***DEEP and DESPP-CFPC strongly recommend rinsing onboard AFFF systems following the procedure outlined below and containing and storing PFAS rinse water for possible future collection and disposal by the State, as funding allows. Alternatively, arrange disposal of PFAS rinse water at an appropriately licensed facility. Disposal of PFAS waste can be contracted using vendors on the State Department of Administrative Services (DAS) contract No. 16PSX0197, "Removal and Disposal of Hazardous Waste Streams," which is available for use by municipalities. Any new F3 used in apparatus that previously held AFFF or other Fluorinated Foam will likely become cross-contaminated with residual PFAS, and deployment of such foam must still be reported to DEEP.***
    - ***Fire departments are welcome to pursue additional decontamination of apparatus at their own expense. However, proper containment and disposal of PFAS wastewater is required to prevent releases to the environment.***
    - ***Because of the uncertainty surrounding future PFAS regulation at the federal and state level, liability relief to fire departments for future foam deployments using onboard apparatus that previously held PFAS-containing firefighting foam cannot be offered or guaranteed by DEEP.***

Draining AFFF and Rinsing Onboard Equipment

One approach for removing residual Fluorinated Foam from Class B tank systems is a Hot Water (>110° F) Triple-Rinsing procedure, described below. Though not as effective at removing PFAS as proprietary cleaning agents, multiple hot water rinses may remove about 95% of the residual PFAS.

1. **Prepare for draining/rinsing**
   A. Locate and have available the Material Safety Data Sheet (MSDS) or Safety Data Sheet (SDS) for each type of Fluorinated Foam concentrate to be drained for waste characterization and disposal purposes.
   B. Establish a secondary containment berm using poly sheeting and absorbent materials around the work area to capture and minimize spread if any AFFF concentrate or PFAS rinse water is spilled. Fire departments with multiple apparatus with onboard AFFF systems should consolidate all draining/rinsing activities and containers at one location. ***Note that pursuant to CGS § 22a-450 and the regulations that implement that section, any release of PFAS liquids, including AFFF or AFFF rinse water, must be reported to DEEP's Emergency Response Unit at 860-424-3333.***

2. **Don Personal Protective Equipment (PPE)**
   A. Wear appropriate PPE as recommended by the product's MSDS/SDS. If an MSDS/SDS cannot be located, coveralls or Tyvek suits, nitrile gloves, eye protection, and shoe coverings are recommended.
   B. Label and store used PPE for future disposal in a 55-gallon drum or a triple-plastic bag (2-mil or better).

3. **Drain AFFF concentrate from Class B tank systems**
   A. Drain any existing AFFF concentrate to the maximum extent possible through the associated plumbing into a dedicated container(s) such as a 55-gallon drum (steel or plastic). Drums can be purchased through vendors on the State DAS contract No. 16PSX0197, "Removal and Disposal of Hazardous Waste Streams," which is available for use by municipalities.
   B. Label the container as "Drained Fluorinated Foam Concentrate" or "Drained AFFF Concentrate" and segregate for future proper disposal.
   C. Minimize the use of additional equipment, such as pumps or hoses, during the draining process to limit the need for cleaning or rinsing of that equipment.
   D. Store container(s) of Drained AFFF Concentrate in an indoor area, if possible, protected from the elements, away from floor drains or catch basins, and within secondary containment or surrounded by booms.

4. **Rinse Class B tank system**
   A. After draining AFFF concentrate from the onboard system, perform a hot water rinse (>110° F) of the tank system including the plumbing. Hot water is recommended especially if Alcohol-Resistant AFFF (AR-AFFF) was previously stored. Certain cleaning detergents (for example, Simple Green™) can be added to the hot water rinse to further help remove residual concentrate. Power washing of interior tank surfaces may also be employed.
   B. Allow the rinse water to stay in the Class B tank system 30 minutes and carefully agitate or circulate the hot water, if possible, before draining the rinse water though the

plumbing system into a dedicated container (55-gallon drum). If hot water is not available, allow cool water to remain in the tank system for 1-2 hours. Use caution to avoid excessive foaming of the rinse water. Label this container as "PFAS foam rinsate."

C. After draining, perform a second hot water rinse and let stand or circulate for 30 minutes before draining through the plumbing system. Add this liquid to the "PFAS foam rinsate" container.
D. Perform a third hot water rinse and let stand or circulate for 30 minutes before draining through the plumbing system. Add this liquid to the existing "PFAS foam rinsate" container.
E. Store the labeled container(s) in a designated and protected area for future proper disposal. Storage in a covered location within secondary containment is recommended.

Disposal

All AFFF concentrate and rinsate should be containerized and labeled for future disposal. **DO NOT dispose of the AFFF concentrate or PFAS rinse water in the sanitary sewer; an on-site septic system, drywell, or catch basin; or on the ground surface.** Doing so constitutes a reportable release of such material pursuant to CGS § 22a-450 and could cause soil, groundwater, and/or surface water contamination, which may impact drinking water wells, streams, fisheries, and/or require environmental remediation at your expense.

Safety Data Sheets identifying the type of Fluorinated Foam concentrate removed from systems are needed to identify the material for proper waste disposal purposes. The State of Connecticut intends to collect the onboard AFFF concentrate and PFAS rinsate, as funding allows.

Use of Replacement Fluorine-Free Foam (F3) Concentrate

Pursuant to Section 1 of Public Act 21-191, and in an order dated June 30, 2021, DEEP identified National Foam Universal F3 Green Class B firefighting foam as an alternative to AFFF containing intentionally added PFAS. Other firefighting foam products that have received GreenScreen™ certification may also be available for use. See GreenScreen Certified™ for Firefighting Foam | GreenScreen® For Safer Chemicals (greenscreenchemicals.org) for the firefighting foam standard and GreenScreen Certified™ Products | GreenScreen® For Safer Chemicals (greenscreenchemicals.org) for the list of certified F3 products.

While municipalities may purchase replacement F3 concentrate from any vendor, municipalities may choose to purchase National Foam Universal F3 Green under the DAS contract **No. 21PSX0028AA**. This contract was established for the DESPP-CFPC, all using State agencies, political subdivisions, and not-for-profits. **State funding allotted for the collection of AFFF does not provide for the purchase of replacement foam.**

Contacts

If you have any questions, or when you are ready for the State to collect your AFFF concentrate, you may contact the Commission on Fire Prevention and Control at foamsurvey@ct.gov or call **Jeff Morrisette at 860-566-0690**.