



Replacing AFFF with Fluorine-Free Foam (F3) at Augusta Regional Airport Fire Department

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Background

Augusta Regional Airport's Aircraft Rescue and Firefighting (ARFF) department is transitioning from legacy AFFF (aqueous film-forming foam) containing PFAS to a new fluorine-free foam (F3) in compliance with emerging regulations and environmental best practices. PFAS-containing foams are being phased out due to their persistent ecological harm.

The chosen replacement is Solberg 3% Synthetic Fluorine-Free Foam (SFFF) concentrate, or F3, a MILSPEC-approved foam listed on the Qualified Product List (QPL) and satisfying the requirements of FAA Part 139, specifically designed for the rapid knockdown of jet fuel fires. This SFFF is fully compatible with standard ARFF equipment (inductors, nozzles, pumps, etc.), simplifying the transition without significant hardware changes.

To ensure a smooth changeover, Augusta will procure 3,200 gallons of Solberg 3% SFFF, set up proper storage, train personnel on the new foam, and thoroughly decontaminate ARFF vehicles. The decontamination and conversion of vehicles will be performed by ECT2, a specialist contractor, using their proven PFAS-removal process. ECT2's proprietary cleaning solution has been shown to remove up to 99% of PFAS residues, compared to 50–71% removal by water triple-rinse, while generating significantly less wastewater. This plan outlines the phased activities from August 2025 through March 2026, designed to facilitate a smooth and safe transition.

Objectives and Priorities

The primary objectives are to replace all AFFF with F3 foam and ensure ARFF readiness with minimal disruption. The prioritized tasks are:

Priority 1: Procure F3 Foam & Storage – Establish a proper storage facility for the new foam concentrate, utilizing a climate-controlled facility with secondary containment to hold the concentrate until use. Secure the required quantity of Solberg 3% SFFF, approximately 3,200 gallons, and arrange delivery.

Update: Climate-controlled storage is ready and in place at the ARFF station. The Aviation Commission has approved the procurement of foam and is going before the Augusta Commission for approval on 10/07/2025 with an expected delivery in late November.

Priority 2: ARFF Personnel Training – Schedule and conduct comprehensive training for all ARFF staff on the new F3 foam. Training will be a combination of classroom instruction and hands-on practice, covering both theoretical knowledge of foam properties, differences from AFFF, safety and handling procedures, and practical skills, including tactics for firefighting with F3, equipment operation, and live-fire drills. Training sessions should be timed to ensure crews are proficient by the time the new foam is put into service.



Update: Classroom curriculum has been completed, and we will start training classes the last week of October. Hands-on training is scheduled with the manufacturer at the Hartsfield-Jackson Atlanta International Airport Fire Department training center on November 13th and 20th.

Priority 3: ARFF Vehicle Conversion (ECT2) – Transition all ARFF vehicles and equipment from AFFF to the new F3 foam. This entails decontaminating the foam tanks and piping of three ARFF vehicles and removing two AFFF storage tanks currently on-site. ECT2 will perform the cleaning and PFAS removal in early 2026, after the new foam is on hand and staff training is underway. All ECT2 work will be scheduled to commence in 2026; ECT2's scope will encompass waste capture and the proper disposal of all PFAS-contaminated liquids and solids generated. Samples of wastewater and the new F3 foam will be taken and sent to a third-party lab for testing to determine the amount of rebound contamination. The end goal is to have all ARFF trucks filled with the new F3 foam and fully operational before the end of March 2026.

Phase 3: ARFF Vehicles Conversion and Testing

Task 3.1 (Sep–Dec 2025) Engage ECT2 & Plan Conversion: ECT2 has been selected as the contractor to perform the critical task of flushing and cleaning the existing AFFF from the ARFF vehicles and installing the new foam. Finalize the scope of the contract with ECT2 by September 2025, and present it for Commission approval. ECT2's proposal (OPP-2025-07-14-073398) covers three ARFF trucks (2012 E-One P-7 1500, 2002 Oshkosh Striker 3000, 1993 E-One Titan 3000) and two AFFF storage tanks (700 gal and 280 gal) on site. According to ECT2's plan, two field technicians will be on-site for approximately 13 days to clean the three vehicles and remove the two foam tanks. In the planning phase, coordinate the following with ECT2: exact dates for mobilization (Feb 2026), ensuring facility readiness (ECT2 requires two adjacent truck bays with water and power, availability of a forklift and operator for moving equipment, etc.), and confirming waste disposal logistics, ECT2 will containerize all extracted AFFF concentrate and rinse water for off-site disposal at appropriate facilities. Develop a plan for ARFF coverage during the cleaning, with only one truck out of service at a time, and coordinate mutual aid in case an aircraft emergency occurs while a vehicle is being serviced.

Task 3.2 (Feb 2026) Vehicle Cleaning & Foam Removal: ECT2 will perform the on-site transition work beginning mid-February 2026. The process will be conducted one vehicle at a time, maintaining ARFF capability throughout. For each ARFF truck, the general procedure is:

- **Drain and Capture AFFF:** The vehicle's foam concentrate tank is drained of all AFFF, and the old foam is pumped into containment totes for disposal. Any residual foam lining



the tank walls is rinsed down into the waste container. The truck's foam piping and proportioning system are isolated from the water tank and prepared for cleaning.

- **Flush with Cleaning Solution:** ECT2 circulates a proprietary PFAS-targeted cleaning solution through the foam tank and piping, scrubbing the interior surfaces to remove PFAS-laden AFFF film. This method, proven to be more effective than a water-only triple rinse, significantly reduces PFAS residues within the apparatus. After sufficient contact time, the cleaning solution is drained and captured.
- **Rinse and Waste Management:** The system is then rinsed with potable water, which is also collected into waste totes. Approximately 2,650 gallons of generated liquid waste, AFFF concentrate, and rinse water are retained for proper off-site disposal. Solid waste, such as used filters and absorbents are packed in drums for disposal. ECT2 handles transportation and disposal of these wastes in compliance with environmental regulations.
- **Vehicle Prep for Refill:** Once a truck is cleaned and the final rinse is done, ECT2 and AGS ARFF personnel will inspect the foam tank and lines to verify cleanliness. ECT2's scope includes verifying that the vehicle is ready to receive the new foam. The AGS ARFF team then moves the vehicle out of the service bay to a location for refilling with the Solberg F3 foam. ECT2 proceeds to the next vehicle immediately, working with no idle days between trucks, as planned. The two old stationary foam tanks (700 gal and 280 gal) are also drained and removed for disposal during this phase, likely in parallel with one of the vehicle cleanings. By the end of March 2026, all three ARFF trucks and ARFF facilities will be completely AFFF-free.

Task 3.3 (Feb 2026) Load New Foam & Testing: Immediately after each truck is cleaned, AGS ARFF personnel will load the Solberg 3% SFFF concentrate into the vehicle's foam tank and complete both input and output-based testing of the truck's foam proportioning system to ensure the correct 3% mix is achieved. Any necessary adjustments, such as changing orifice plates or calibrating proportioners, will be made at this stage. Once a truck passes testing, it is officially placed back in service with F3 foam. We will repeat the filling and testing process for each vehicle as it completes the cleaning process; all ARFF vehicles should be reloaded with the new foam by late February 2026.

Task 3.4 (Feb–Mar 2026) Decommission Old Foam: As part of the final wrap-up, ensure that all remaining AFFF stock and equipment are correctly handled. The two old stationary AFFF storage tanks, now emptied, will be removed and disposed of by ECT2. Update vehicle placards or labels to indicate "Fluorine-Free Foam" and change any SOPs that referenced AFFF-specific instructions. Notify mutual aid departments that Augusta AGS ARFF is now using F3 foam to coordinate foam compatibility during joint responses if necessary.



Regulatory Compliance

This transition plan is designed to comply with all current and upcoming regulations on firefighting foam and PFAS at the federal, state, and industry levels:

- **FAA Regulations and Guidance:** The FAA Reauthorization Act of 2018 mandated that the FAA cease requiring AFFF by 2021. As a result, the FAA no longer enforces MIL-F-24385 (the old AFFF mil-spec) at Part 139 airports and explicitly allows qualified F3 foams. Our use of an F3 from the DoD QPL will satisfy the FAA's Part 139 requirements for extinguishing agents. We will continue to meet FAA AC 150/5210-6E, "Aircraft Fire Extinguishing Agents," which provides standards for foam agents by using a certified agent and maintaining the required quantities on vehicles. Additionally, FAA CertAlert 24-11 requires testing the foam system after conversion. The plan's timeline ensures continuous compliance with Title 14 CFR 139.317(b) ARFF index requirements.
- **Environmental Regulations (EPA/CERCLA/RCRA):** The EPA has classified certain PFAS, such as PFOA and PFOS, commonly found in legacy AFFF, as hazardous substances under CERCLA (Superfund). By eliminating AFFF and properly disposing of it, the department will comply with these regulations, thereby minimizing future liability. We will treat all AFFF waste and contaminated rinse water as RCRA hazardous waste, and it will be disposed of in accordance with regulations and the rules of the Georgia EPD.
- **State Laws:** Georgia House Bill 458 prohibits training with PFAS foam and essentially bans the use of Class B foam with intentionally added PFAS except for life safety and property conservation during firefighting emergencies. Our plan is fully compliant; we will not use AFFF for any testing or training purposes. If AFFF use cannot be avoided (a worst-case scenario in an emergency), we will immediately implement contamination control and cleanup, consistent with state requirements. By the end of this transition plan, no PFAS foam will be in use, well in advance of any further state deadlines (Georgia's ban on any PFAS foam use is in effect until 2030 for the exemptions, expecting that by 2030, alternatives will be fully deployed).
- **NFPA Standards:** We are aligning our practices with relevant NFPA standards. NFPA 403 (Standard for ARFF Services at Airports), NFPA 412 (Standard for Evaluating ARFF Foam Equipment), and NFPA 412 (2019 ed. and upcoming revisions) outlines methods for foam solution testing, which we will use to verify our F3 proportioning and foam quality. NFPA 403 and NFPA 405 outline the training frequency and drills, which our program adheres to.
- **Documentation and Certification:** Upon completing the transition, we will update our Airport Certification Manual (ACM) to reflect the new foam agent and any new



procedures that have been implemented. We will also be prepared for our annual FAA Part 139 inspection, during which inspectors may request evidence of the F3 performance and disposal records for AFFF. Our thorough documentation of cleaning, disposal, training, and testing will demonstrate compliance at every step.

By proactively meeting these regulations and standards, the Augusta Regional Airport Fire Department will not only be in full compliance but also reduce environmental liability and improve safety for firefighters and the community.