



PFAS Decontamination Supports Safe Transition to Fluorine-Free Firefighting Foam

As airports across the U.S. transition away from PFAS-containing firefighting foams, an International Airport Fire Department faced a complex operational and environmental challenge: safely removing Aqueous Film Forming Foam (AFFF) from its Aircraft Rescue and Fire Fighting (ARFF) vehicles while maintaining emergency response readiness.

Legacy AFFF systems contain per- and polyfluoroalkyl substances (PFAS), which are persistent in the environment and increasingly regulated. To support the transition to fluorine-free foam (F3), the department needed a partner capable of executing a controlled decontamination process, managing PFAS waste streams, and returning vehicles safely to service.

The airport engaged **Republic Services** to lead the decontamination and waste management effort.

Opportunity

Prior to Republic Services' involvement, the fire department needed to address PFAS contamination within its ARFF fleet, which had historically used AFFF for firefighting operations. Residual PFAS remained throughout foam tanks, water tanks, piping, and internal components, creating environmental risk and barriers to transitioning to F3.

The project required a partner capable of executing a **multi-step decontamination process**, managing large volumes of PFAS-impacted liquids, and coordinating closely with airport operations. Only one vehicle could be taken out of service at a time to meet FAA index requirements, making scheduling critical to maintaining continuous emergency readiness.

The project also required strict adherence to evolving federal guidance and best practices, including confirmation sampling and waste management procedures designed to minimize environmental impact.

Republic Services was selected to deliver a solution combining technical expertise, operational flexibility, and environmental expertise.



Sustainability in Action

Solution

Republic Services implemented a structured, multi-phase approach to support the airport's transition to fluorine-free firefighting foam, while maintaining operational readiness.

Assessment and Preparation

Republic Services established work zones, staging areas, and containment measures. Vehicles were prepared for decontamination, including draining foam and water tanks and isolating discharge pathways, while preventing any release of PFAS-impacted materials to sanitary or stormwater systems.

Decontamination Process

Using proven **decontamination methodology**, Republic Services systematically removed PFAS residues from all internal systems.

The process included:

- Multiple rounds of **low-pressure washing and steam flushing**
- **Hot water soaking cycles** to break down residual PFAS contamination
- Repeated rinsing until no visible foam remained

All rinsate generated during cleaning was captured and transferred into containers and frac tanks for controlled storage and disposal.

Each vehicle underwent a sequenced cleaning cycle spanning multiple days, followed by testing and confirmation before returning to service.

Sampling and Verification

To validate the decontamination process, Republic Services supported a rigorous **sampling and testing protocol**. Vehicles that did not meet target thresholds underwent additional cleaning cycles until acceptable levels were achieved. This ensured that each unit met established decontamination goals before transitioning to fluorine-free foam.

Waste Handling and Disposal

Republic Services managed all investigation-derived waste generated during the project, including:

- AFFF concentrate
- Decontamination rinsate
- PPE and consumable materials

Liquids were containerized in totes and frac tanks, with an estimated **5,000 gallons of rinsate** generated during the process.

All waste streams were characterized, documented, transported, and disposed of in accordance with regulatory requirements, including transport of rinse water for full sequestration and disposal at our Romulus Injection Well.



Data Points

Republic Services delivered measurable results across decontamination, waste management, and operational continuity:

6

ARFF vehicles decontaminated

5,000

gallons of PFAS-impacted rinsate generated and contained

Project Scope

Mix of **420-gallon and 40-gallon foam systems**

Sequential cleaning to maintain FAA response readiness

Waste Disposal

PFAS-impacted liquids transported for disposal at the **Romulus injection well**

AFFF concentrate removed and segregated

Use of totes, IBCs, and frac tanks for storage and transport

Operational Outcomes

Vehicles successfully prepared for transition to F3

PFAS contamination reduced to acceptable thresholds

No environmental releases during decontamination

Continued engagement for additional PFAS-related work



Bottom Line

Republic Services helped this airport fire department safely transition away from PFAS-containing firefighting foam by delivering a disciplined, end-to-end decontamination and waste management solution. By combining technical expertise, structured execution, and strict environmental controls, Republic Services minimized risk while maintaining operational readiness.

The success of the initial project led to additional work supporting PFAS removal within the facility, demonstrating the trust built through reliable performance. This case highlights Republic Services' ability to manage **complex PFAS decontamination projects without interrupting active operational environments**, helping customers meet evolving regulatory expectations while protecting people and the environment.

“Republic Services brought a lot of structure and discipline to a complex process. They worked closely with our team, handled the decontamination and waste management safely, and helped us move forward with confidence as we transitioned away from AFFF.”

– Industry Partner

Keys to Success

- ✓ Structured PFAS decontamination methodology
- ✓ Coordination with airport emergency operations
- ✓ Sequential vehicle processing for FAA compliance
- ✓ Containment of all PFAS-impacted liquids
- ✓ Sampling and verification capabilities
- ✓ Regulatory compliance in waste handling
- ✓ Expanded customer engagement

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Sustainability in Action