



EXPERTS TALK

Addressing PFAS at Airports with **Marc Gambrill** and **Kate Garufi**



Marc Gambrill



Kate Garufi

Our professionals have helped numerous agencies and communities respond to this challenge, including work with [state health departments](#), [city drinking water systems](#), [landfills](#) and more. Airports have also become an area of concern as attention to PFAS continues.

[Marc Gambrill](#) is a senior aviation program manager and former chief development officer at a commercial airport. [Kate Garufi](#) is a senior program manager and HDR's site investigation and remediation practice leader who co-chairs our PFAS practice group. In this interview, they explain why airports are a particular focus of PFAS cleanup, the current status of regulations and how airports should be responding now to this environmental challenge.

Anticipating Regulation on the Environmental Impact of Forever Chemicals at Aviation Facilities

For decades, per- and polyfluoroalkyl substances, or PFAS, have been used around the world in a wide variety of applications, including firefighting and industrial manufacturing. As their human health impacts have become clearer, these “forever chemicals” have been increasingly targeted by environmental regulations seeking to sharply reduce or eliminate their use, including at airports.

Q. Why is PFAS contamination a potential issue that may affect airports in particular?

Gambrill: Emerging science research, increased regulatory attention, and heightened community focus are elevating PFAS issues at airports. PFAS are used in many products, from consumer products to building materials. For airports with a firefighting department, the PFAS-impacted areas of greatest concern are typically those associated with the release of fire-suppressing aqueous film-forming foams (AFFF) during firefighting training or calibration activities and during emergency response. There may also be on-airport sources of relevant PFAS associated with hangar fire suppression systems or other tenant activities. While their unique chemical properties offer enhanced fire suppression capability, there is growing attention to their release into the environment. Adjacent off-airport industrial activities may also be sources of PFAS discovered in the environment at or near an airport. Historic uses and storage practices have resulted in stormwater and subsurface infiltration that have led to various PFAS impacts to soils, groundwater and surface water at these facilities.

There are some alternative firefighting resources being explored by airports, but for many facilities AFFF remains a primary solution for



firefighters. Some steps are being taken to limit exposure. Airports are paying close attention to how much AFFF they use in tests to reduce the potential for contamination. Many states bar airports from discharging foam onto the ground or draining it into storm drains or sewer systems. Some states are also considering bans or phasing out of AFFF altogether. Notably, the U.S. Department of Defense pledged to transition away from AFFF at all of its facilities by 2026. More environmentally friendly testing options also exist. In Washington State, for example, the state [Department of Ecology helps reimburse airports](#) for the cost of an input-based test box that allows airports to test their systems without actually spraying foam on the ground.

But changes to current systems and testing procedures, while valuable, do not immediately resolve the historic use of this foam over decades. As a result, soil, groundwater, and surface water at airports may be impacted by historic AFFF uses and this contamination may complicate future construction and development efforts.

Q. What's the current status of PFAS regulation and airports? What guidelines should airports be aware of?

Garufi: While there are no PFAS regulations specifically issued by the FAA, it's expected that at some point there will be a moratorium on all PFAS-containing firefighting materials. When they come, those regulations will require system cleanouts and proper disposal of existing firefighting foam.

A number of existing PFAS regulations and guidance already apply to airports. Specific to PFAS, EPA has issued three significant regulations or guidance that are having ancillary impacts on airports. The first rule, issued this year,

regulates PFAS under the Safe Drinking Water Act. This regulation does not have a huge impact directly on airport AFFF use and operation; however, if historic or current AFFF uses at airports has any impact on drinking water supplies — for example, impacts to private groundwater well users in the area — these regulations will be a consideration.

Second, in 2022, EPA issued a memorandum providing guidance to states on how to use the Clean Water Act's National Pollutant Discharge Elimination System, or NPDES, permitting program to reduce harmful PFAS pollution. In accordance with this guidance, state and federal programs are already beginning to ask entities with NPDES permits to begin sampling for PFAS. In addition to requiring PFAS sampling, this guidance encourages wastewater plants to reduce PFAS and are looking at their major dischargers — including airports — to determine their major sources of PFAS. Pressure will continue to move upstream to the source of contamination to reduce PFAS levels in the environment. This will result in airport discharge requirements for stormwater or wastewater discharges that may necessitate PFAS treatment to ensure compliance.

Another significant change for airports is the designation of two PFAS compounds, PFOA and PFOS, as hazardous substances under the federal [Comprehensive Environmental Response, Compensation and Liability Act](#), better known as the Superfund Law. This hazardous substance designation gives the EPA an enforcement avenue to go after polluters. The agency has already stated in its 2024 PFAS Enforcement Discretion and Settlement Policy Under CERCLA that it will not target publicly owned airports but has said nothing similar about privately owned facilities. Because airports are known entities who have

used PFAS-containing compounds, this creates a new concern particularly for private airports that may be the focus of EPA CERCLA enforcement actions to address soil, groundwater and surface water contamination from current and historic PFAS compound uses.

Although regulations have not been finalized, airports should also be paying attention to EPA proposed regulatory actions under the [Resource Conservation and Recovery Act](#), or RCRA, which will determine whether PFAS compounds or PFAS-containing materials are hazardous waste. If or when that designation occurs, PFAS wastes, such as AFFF, impacted soils, or AFFF cleanout water, will have to be handled and disposed of in accordance with RCRA hazardous waste guidelines. Recognizing potential liability if PFAS becomes regulated as a hazardous waste under RCRA, some airports are already opting to keep materials on site as much as possible rather than sending contaminated materials to landfills or into water systems.

Q. How should airports include PFAS mitigation in their design plans for current and upcoming capital projects?

Gambrill: Because one of the main sources of PFAS contamination at airports is their firefighting foam, these systems will need to be phased out eventually. On one recent project building a new hangar, for example, we worked with the local building official and fire marshal to replace the foam with a fire suppression system that relies on sprinklers. One helpful change is that the latest codes from the National Fire Protection Association allow some alternative designs. While not every city or state has adopted the latest NFPA codes, designers can point to them as evidence that alternative designs are possible and accepted. In our case, we met with the local fire marshal at the 10% design level to show them a design based on NFPA codes, and it was approved, allowing us to move forward with a sprinkler-based system.

For facilities that already have foam suppression systems installed, a retrofit will likely be necessary to remove it at some point. Planning for that change will be an important part of any capital projects that include those facilities. The U.S. Department of Defense has been a leader in this change, and we've relied in part on our colleagues that have extensive experience in military aviation design.

Q. How should airports respond if they find PFAS during construction?

Gambrill: As PFAS contamination becomes more high profile, contractors — and the public — are raising concerns about the possibility of dealing with the contamination during

construction projects. We've been a part of multiple projects recently in which contractors specifically asked about materials management, especially if PFAS is found in excavated soil.

Without clear guidance from the FAA about airports' responsibilities, there's no one right answer. But many airports are choosing to retain any contaminated soil on site for now.

Garufi: I agree. While every project is different, as PFAS regulations are rapidly evolving, my general suggestion is to evaluate alternatives to keep impacted soils on site, at least in the short term. For example, if an airport is going to disturb soils as part of a construction project and those soils are determined to be impacted by PFAS, an option would be to consider managing contamination by constructing a runway or taxiway on top, a capping strategy, that will reduce human exposure and help prevent migration to groundwater or surface water.

If materials cannot be capped or reused on site based on exceedances of state or local limitations for acceptable reuse, then another alternative is stockpiling materials at the airport. This option is only viable if space is available. A stockpiling strategy will allow decisions on final management to be deferred until there is more clarity in regulations. The Department of Defense is employing temporary stockpiling strategies for contaminated soils for now, to keep these materials in their control, and reduce



liability associated with off-site management or disposal.

Last, if materials cannot be capped or stockpiled on site, there are a few options to consider for material management:

- Sending material to a hazardous waste (RCRA C) landfill. This is the most conservative approach when managing liability, but it can be expensive considering transportation and tipping fees.
- Sending materials to a non-hazardous waste landfill. This can be a more cost-effective approach but can be limited by a facility's desire to accept this material. In addition, this could lead to future liability considerations should these substances be regulated as hazardous wastes;
- Sending materials to an incinerator for destruction. This can be an expensive alternative but can provide a permanent destruction solution.

Q. Beyond specific actions during projects, how should airports be preparing for PFAS regulations?

Gambrill: Airports — especially smaller general aviation airports without the same resources as commercial airports — face a major challenge in mitigating PFAS in the coming years. But there are some important steps leaders can take.

- Stay informed: Assign team members to be informed on the latest PFAS regulations. Pay attention to the ongoing industry discussion. Learn about solutions implemented by

other airports and their pros and cons.

- Be a part of the solution: As appropriate, update project plans to reduce or eliminate PFAS use. Share any innovations with the wider aviation industry. Take advantage of opportunities to reduce PFAS use, including local, state or federal programs that may help fund mitigation efforts.
- Be proactive: Prepare now as best as possible with the information on hand. Seek more information as needed

We've been hearing for years in the aviation industry that PFAS regulation is coming. Now is the time to prepare and make what changes we can to be proactive.

Garufi: Agreed. My suggestion is to develop a PFAS risk management strategy and dedicate resources to assess and manage your risk as regulations evolve. Assemble a team that understands the dynamic regulatory environment, understands your airport's risk profile when it comes to insurance risks, political risk, public relations and more. Develop a forecast of upcoming projects that may be affected by this issue. And if they do not already exist, create soil and stormwater management policies that address PFAS.

Keep PFAS on your airport's radar – continue to review and revisit your strategy. This will ensure your airport understands regulations, their impacts, and is prepared to take assessment or cleanup actions, if required.

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