

## WHITE PAPER / PFAS REGULATIONS

# MANAGING YOUR AIRPORT'S RESPONSE TO NEW PFAS REGULATIONS BY Brian Hoye, PG

As concerns about the environmental and public health risks of per- and polyfluoroalkyl substances (PFAS) grow, the rules governing their use in aircraft rescue and firefighting foam are changing. While federal and state agencies work toward new PFAS regulations, airports are required to take steps to manage the associated long-term liability.



Once found in everything from water-repellent clothing and nonstick cooking surfaces to aqueous film-forming foam (AFFF), PFAS are a group of synthetic chemicals that have come under regulatory scrutiny due to the potential risks they pose to human health and the environment. Since the early 2000s, the U.S. Environmental Protection Agency (EPA) has worked with various industries to phase out certain PFAS from commercial production.

Of the more than 1,000 PFAS inventoried by the EPA, about half are still commercially available, including those found in AFFF. If PFAS are not properly managed, airports face the risk of PFAS being released into the environment via stormwater, groundwater, surface water and soil with each use of these foams.

Several states have passed regulations to address PFAS impacts to the environment, past and present. Recent examples include California, Massachusetts, Michigan, Minnesota, New Jersey, New York, Vermont and Wisconsin. The EPA, meanwhile, has moved to have PFAS listed as hazardous substances under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). As regulated compounds, PFAS would be governed by the strict handling and disposal guidelines prescribed in CERCLA and the Resource Conservation Recovery Act. In addition, potentially responsible parties of Superfund sites would be required to address PFAS contamination as part of remediation efforts.

The Federal Aviation Administration (FAA) has also entered the conversation. The FAA previously required airport operators to utilize PFAS-containing AFFF during mandated tests of firefighting equipment and when responding to fires. However, in January 2019, the FAA issued a National Part 139 CertAlert recommending several alternative Aircraft Rescue Firefighting (ARFF) testing systems. During the prior year, the FAA Tech Center completed research on three types of testing equipment that do not dispense foam. The FAA's intention with these systems is to minimize the release of PFAS to the environment and satisfy Part 139 testing requirements.

To reduce airport reliance on PFAS for ARFF, efforts are also underway to develop and test PFAS-free AFFFs as

replacements for PFAS-containing products. While the FAA is working to identify a reliable PFAS-free AFFF and plans to remove its mandate requiring the use of PFAS-containing AFFFs by Oct. 4, 2021, airport operators will be expected to depend on PFAS foams for at least the foreseeable future.

## FACTORS TO CONSIDER

Organizations such as Airports Council International and the Interstate Technology Regulatory Council have produced guidance documents to educate airport operators and first responders on issues pertaining to PFAS use and best practices for reducing environmental liabilities while using PFAS-containing AFFFs. These guidance documents are helpful to airport operators as they develop PFAS response plans for their facilities but are silent on some of the most significant issues and risks affecting airports. These factors should also be considered when developing PFAS response plans, including:

### 1. Identification and Management of PFAS-Containing Materials

In addition to AFFF, PFAS are present in certain industrial fluids, cleaners and other products and operations potentially found in airports. Facilitywide PFAS-inventories are likely needed to determine both where PFAS are present and how reliant an airport is on PFAS-containing materials. An airport should determine how much it relies on these products to provide mission-critical benefits, such as fire suppression, if a mandate is in place requiring its use and if PFAS-free alternatives are available. To evaluate the current risks posed by these products and the precautions needed to prevent their release, operators should assess the pathways by which these products could enter the environment and travel off their property or to sensitive receptors.

To protect against these risks, operators should also take a fresh look at their current requirements for the storage, use and response to the release of PFAS-containing products, making updates to policies and procedures, as appropriate. Policies should contemplate recapturing PFAS following both accidental releases and when PFAS-containing AFFF is discharged when fighting fires.

A formal process for documenting cleanup activities, including confirmation sampling, will help minimize long-term PFAS liabilities.

While many airports have general clauses in their tenant and vendor agreements that require compliance with applicable environmental laws, these obligations may not extend to PFAS, given their emerging and inconsistent regulatory status across the U.S. Providing specific direction on the management and use of PFAS-containing products, therefore, is critical to preventing future liabilities.

#### 2. Waste Disposal and Management

Given the historical and current uses of PFAScontaining products and AFFF at airports, the potential to generate PFAS-containing wastes in everyday operations is high. At the time of this paper's publication in October 2019, legislation had been proposed to list PFAS as a hazardous substance, a move that would give regulators increased authority to require the remediation of PFAS contamination. The new classification would also affect the disposal of PFAS-containing materials.

This legislation includes broad references to PFAS, rather than individual PFAS compounds with known or suspected toxicity. This approach will require operators and waste managers to consider more PFAS than just perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS) and related compounds. For example, the PFAS used to replace these compounds in current PFOA- and PFOS-free alternatives will need to be considered when making decisions regarding the classification and treatment of wastes.

Incineration recently has become a primary means of disposing PFAS-containing wastes. However, deeper scrutiny of incineration suggests it may not be 100% effective in destroying PFAS. This poses a challenge to site operators interested in removing PFAS from their airport while being mindful of the long-term CERCLA liability associated with PFAS-containing waste streams sent to storage and disposal facilities. Furthermore, some landfill operators are adjusting their waste acceptance criteria ahead of any CERCLA listing to prohibit disposal of PFAScontaining wastes. This may result in additional waste management and disposal issues and affect airports' current and future waste management practices and costs.

#### 3. Infrastructure

Protecting an airport against future PFAS liabilities may require upgrades or alterations to existing infrastructure. As additional AFFF regulations are created, the use of existing fire suppression systems, fire trucks and other equipment that handle PFAScontaining materials will require further evaluation. New or upgraded fire suppression systems will likely be required to include features that help collect and manage AFFF after it is released or used.

Switching to PFAS-free products alone may not rid existing systems of residual PFAS that could still be released into the environment from a fire truck or fire suppression system. While decontamination of these assets may be an option, the solvents and procedures required to reduce PFAS to an acceptable parts-per-trillion level may damage or significantly reduce the longevity of these systems. Airports that choose to replace PFAS-containing products with safer alternatives will need protocols and procedures in place to remove these persistent PFAS compounds from pumps, tanks, trucks and other airport-owned equipment that currently house AFFF.

In addition to ARFF infrastructure, operators will need to consider how PFAS regulations may affect stormwater and wastewater infrastructure that may be affected by PFAS. As new regulations are established, waste stream regulatory classification may change while new discharge permit limitations are likely. These requirements have the potential to affect stormwater retention pond construction and require installation of technologies such as sorption media, fractionation or certain emerging technologies to remove PFAS prior to discharge.

#### 4. Analytical Methodology

While the EPA works to produce certified analytical methods for identifying PFAS in surface water, groundwater, soil and sediment, airport operators may still need to sample their property for PFAS.

Whatever the actual driver, operators should carefully consider what sampling efforts are needed to meet the requirements placed on them and how the data they generate may result in or affect their obligation to react to or report the presence of PFAS. PFAS site characterization should consider more than just the chemical occurrence of PFAS. Given many unknowns regarding the fate and transport of PFAS in the environment, operators and their consultants should consider site features that may influence PFAS migration. This information is needed to provide an informed understanding of PFAS sources, the relationship between the airport and offsite PFAS impacts, and how to address each PFAS airport challenge.

Analytical questions include:

- As new analytical methods are established, which is most appropriate for our application and which lab should be used?
- Where should samples be taken, given historic PFAS use(s) at the site, their likely release mechanisms and potential to be transported within the environment?
- What results might be expected and what is the response to scenarios where PFAS are identified?
- What reporting obligations might there be, given the current regulatory landscape?

#### 5. Treatment and Remediation

Like the PFAS regulatory framework, the technologies available to treat and remediate PFAS are evolving. Technologies proven to remove or destroy PFAS are limited. Academics, technology vendors and engineering firms are working to develop innovative solutions that provide more reliable and less expensive ways to deal with PFAS by destroying wastes on-site rather than paying for off-site disposal or developing more efficient sorption media.

For airports to select the most appropriate treatment methods, both commercially available and emerging technologies will need to be evaluated for their effectiveness in specific waste stream chemistries and volumes. In some cases, currently available treatment technologies may not provide a suitable remedial alternative for a given application, underscoring the need for innovation at the airport level. Such innovations require partnering with a firm that has strong ties to academia and is willing to work with operators to develop, test and implement economical solutions that will reduce risks beyond what commercially available technologies can provide. For example, our firm is working with industries affected by PFAS and leading academics to develop pilot testing approaches and strategies for delivering innovative solutions to key needs.

#### NEXT STEPS

The issues surrounding PFAS are dynamic and expected to remain in flux for the near-term as regulators solidify guidelines and standards. But given all the facets of airport operations that these chemicals can impact, airport operators cannot afford to wait to prepare.

Many airports now face the difficult task of determining how to respond to an environmental issue that does not have an enforceable standard in place. One thing is certain: A one-size-fits-all PFAS solution does not exist. Each airport operator will have to determine if a PFAS response plan tailored to its airport's size, environmental setting, risk tolerance and financial resources should be developed.

Professionals who understand the complicated — and changing — world of PFAS regulations, materials management, disposal, infrastructure, site investigation and remediation can be invaluable when developing such plans. Airport consultants experienced in both the operational impacts of PFAS and the engineering solutions for mitigating them can be instrumental in identifying the optimal PFAS response.

## BIOGRAPHIES -

**BRIAN HOYE, PG,** is the emerging contaminates lead in the Environmental Services Group at Burns & McDonnell. He has completed PFAS-related projects across multiple industries with project scopes that include PFAS site characterizations and conceptual site model development, regulatory negotiations and compliance strategy development, PFAS-related business disruption minimization, PFAS risk evaluations, and remedial technology evaluations/selection and treatment.

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