
AEI's PFAS *Action Plan*

The Problem with PFAS:

PFAS, short for per- and polyfluoroalkyl substances, are in a class of over thousands of man-made chemicals first created in the 1930s and 1940s to make fluoropolymer coatings and products that repel water and oil, have high and low temperature stability and reduce friction.

These desirable properties have led to PFAS incorporation in a wide range of consumer and industrial products. From food packaging to cookware to textiles, from medical to automotive to aerospace applications, and many more. Products containing PFAS are prolific.

Because the unique chemical composition of PFAS is one of the strongest ever created by man, they are also referred to as 'forever chemicals' as it is estimated they can take up to 1,000 years to break down in nature. The growing body of scientific health studies that reveal associations between human PFAS exposures and specific adverse human health outcomes is even more problematic.

Health effects associated with human exposures to PFAS include children's cognitive and neurobehavioral development, immune system dysfunction, endocrine disruption, obesity, diabetes and lipid metabolism and cancer.

Exposure pathways of PFAS to humans have been linked to various sources, including drinking water. The environmental and body burden of PFAS has drawn attention from health, environmental and regulatory officials as well as attorneys representing public concerns. The growing number of lawsuits indicates that PFAS will be a significant concern for years to come.



PFAS & ASTM E1527-21:

The updated ASTM E1527-21 standard classifies PFAS as "emerging contaminants" that can be addressed in Phase I ESA reports as a non-scope item. While assessment of PFAS in Phase I ESAs is currently optional, given the shifting regulatory winds and multiple active lawsuits, AEI highly recommends that lenders and investors begin looking at potential PFAS contamination risks sooner rather than later.

While PFAS reporting is not mandated—yet—AEI is taking a proactive stance with an action plan and tiered approach to address PFAS contaminants in our due diligence reports.

AEI's PFAS Action Plan to Educate & Inform:

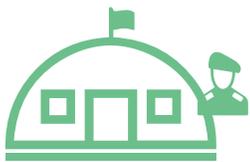
1. Proactively assess potential risks associated with PFAS contamination.
2. Participate in ASTM international PFAS subcommittees and guide the industry on how to address PFAS within the framework of due diligence reports
3. Thoroughly train and educate internal staff on the various concerns regarding PFAS contamination
4. Educate the community and fellow industry professionals on the practical approaches to assessing PFAS risks
5. Include research and discussion of potential PFAS concerns (where applicable) in AEI's Phase I ESAs and other due diligence reports. Discussion includes:
 - Assessment of potential historical PFAS use/generation (on-site and off-site sources)
 - Analysis of potential contamination pathways
 - Determination of potential impact to the property asset and client liability

AEI's Approach to PFAS:

When should you worry about PFAS?

AEI has taken a multi-tiered approach to identifying potential PFAS contamination at a property. We begin our initial research by identifying potential on-site and off-site sources of contamination, which include:

TIER 1: Contamination Sources



Government & Military Installations

- Government/military facilities that utilize AFFF for fire training
- Electroplating operations at federal facilities and government-owned, contractor-operated (GOCO) research and development plants
- Wastewater treatment plants (WWTP) at federal installations



Commercial & Industrial Properties - High Risk

- Electroplating operations, specifically hard chromium plating (an industrial activity where PFAS-containing mist suppressants may have been used)
- Landfill Operations, Waste Disposal Areas, and Wastewater Treatment Plants
- Open burning / open detonation of munitions
- Agricultural uses (1970s-present) that included Application of Biosolids/WWTP Sludge (that potentially contained PFAS) on bare soils
- Refineries and petrochemical industries that utilized AFFF fire training areas
- Public-sector and private-sector airports (any AFFF utilized on-site for fire training)
- Chemical industry with a special focus on processing aids in the polymerization of fluoropolymers
- Any large past fire events or any known or suspected use of AFFF at the subject property (including if the property was a fire station or included any fire training areas)



Commercial & Industrial Properties - High to Moderate Risk

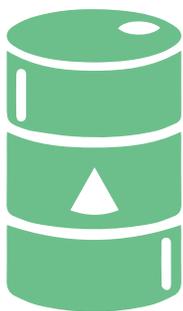
- Surface protection of textile, apparel, leather, carpets and paper
- Electronics industry



- Plastics and rubber production
- Coatings, paints and varnishes
- Munitions and Explosives Production
- Aircraft and Heavy Equipment Manufacturing

TIER 2: Features or Conditions

If the above are identified as contamination sources, then AEI also considers potential features or conditions that could have led to a release of PFAS into the environment. Such instances include:



- Drains, sumps, pits and/or subsurface conduits that potentially contained/discharged PFAS
- Smokestacks or aerial dispersion that potentially contained/discharged PFAS
- Permitted (NPDES) and potentially unpermitted wastewater discharges that potentially contained/discharged PFAS
- Any large containers or drums containing of PFAS (raw or mixture) that may have potentially leaked or discharged to the subsurface
- Any known or suspected conditions that would result in a potential release of raw materials or wastes from the site operations

TIER 3: Exposure Pathways

Past and present uses that may have potentially included the handling and discharge of PFAS wastes are identified via historical sources, agency records and NAICS code identification.

Certain industries and operations carry a much higher risk of PFAS contamination, while other industries can be considered more moderate. We assess the risk profile of each potential source of PFAS contamination.

If potential PFAS contamination is identified, AEI will account for potential exposure pathways and liability risks for the client. Such pathways include:



Groundwater

Many states have already established public databases that report PFAS contamination in groundwater and drinking water wells as illustrated in the following map:



Drinking Water

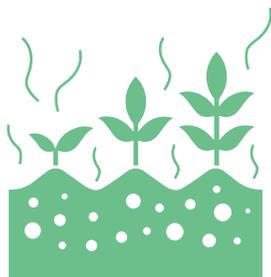
PFAS in drinking water is a major human health crisis that is being addressed through legislation in multiple states. Numerous lawsuits and local residents are also aggressively working to hold responsible parties liable for contaminating drinking water supplies. Potential contributors to PFAS contamination in drinking water face a very high liability risk.



Non-potable Groundwater

PFAS present in non-potable groundwater is expected to have a lower liability risk profile than potable groundwater. However, financial risk is still expected. Many states are actively passing new PFAS regulation each day. Federal legislation lags behind many state-led actions; however, with the EPA's PFAS Road Map that was released in 2021, corrective actions are on the horizon.

Cleaning up PFAS contamination in groundwater is difficult and expensive. PFAS plumes are known to migrate several miles.



Soil

PFAS in soil can present a direct contact exposure to residents and site occupants and threaten to migrate into the groundwater table. PFAS are highly mobile and their contamination in soil has a high probability to leach into the groundwater table.

Soil Vapor

The science behind the potential presence of PFAS in soil vapor is evolving and emerging. AEI actively assesses studies and their applicability to real estate assets.

What are states and the federal government doing about PFAS?

The EPA issued a PFAS Road Map in 2021 outlining the steps they are planning to take regarding PFAS. Among numerous other proposed rules and actions, the EPA intends to designate PFOS and PFOA (the two oldest and most well researched PFAS) as hazardous substances under CERCLA by the summer of 2023. This means that these two compounds will be considered within the scope of the ASTM E1527-21 standard. In other words, it is likely that your Phase I will be required to discuss potential PFOA and PFOS contamination by as early as next year.

Several states are actively passing new PFAS laws each day. Regulations include a wide berth of categories. Laws range from classifying PFAS as hazardous substances under state spill laws, to setting limits on biosolid sludge spreading at agricultural sites, to requiring certain high-risk industries sites to sample for PFAS. The list of sites contaminated by PFAS continues to grow each day. PFAS contamination has been identified as an additional contaminate on numerous Superfund sites. As a result, some closed release cases are now being reopened to address PFAS contamination.

Next Steps:

If potential PFAS contamination identified at your property, AEI will discuss the potential risk for your property today and in the future and best next steps.

If you are concerned that your site may be a potential source of PFAS contamination or has been significantly impacted by an off-site source, please feel free to contact AEI to conduct additional research and investigation.