PFAS in U.S. Property Transactions

PFail to Plan, Plan to PFail

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Per- and polyfluoroalkyl substances (PFAS), a category of several thousand human-made chemicals, have been used for decades in consumer and industrial applications. As more is learned about them, including their resistance to degradation and links to human health concerns, lawmakers and regulators across the country are taking action to ban their use and to require responsible parties to clean up properties with contaminated soils and/or groundwater. This article explores the evolving requirements related to investigation, disclosure, remediation, liability, and other legal and regulatory burdens that PFAS contamination can present in industrial/commercial real property transactions and identifies risk management strategies that can be deployed to aid buyers, sellers, and lenders/investors to manage potential PFAS-related liabilities.

PFAS are synthetic chemical substances first patented in the 1940s that are highly effective for their intended use, ranging from firefighting foam to nonstick coatings for cookware. Used in these materials for decades, PFAS have now been detected at concerning levels in soil, groundwater and drinking water, biosolids, and humans and animals. PFAS have been coined "forever chemicals" for being nearly impossible to clean up in environmental media and potentially linked to serious health problems. PFAS present a unique risk to parties transacting on real property because the current legal framework for investigating, disclosing, and remediating PFAS contamination on real property is variable across jurisdictions and rapidly changing at the state and federal levels. This article addresses the PFAS risks and issues arising in real property transactions given the evolving federal and state legal requirements and presents risk management strategies for stakeholders to manage potential PFAS-related liabilities in such transactions.

According to a database maintained by the U.S. Environmental Protection Agency (EPA), there are more than 15,000 PFAS compounds. All PFAS contain a chain of carbon atoms bonded to fluorine atoms, and some also have a functional group at the end of the chain. These structures are the basis for different chemical properties and different chemical names. In perfluoroalkyl substances, all carbons except the last one are attached to fluorine atoms. The last carbon attaches to the functional group. In polyfluoroalkyl substances, at least one (but not all) carbon is attached to a fluorine atom. The carbon-fluorine bond is very strong, hence the resistance to degradation. PFAS repel oil and water due to their chemical makeup, making many PFAS effective surfactants or surface protectors. Understanding this basic PFAS chemistry tutorial is important in the context of real property transactions given that PFAS can reside in soil and groundwater for decades or longer, potentially (and significantly) increasing costs of environmental due diligence investigations and any resulting remediation that may be required, as well as creating potential toxic tort liabilities (e.g., third-party claims for bodily injury and/or property damage).

PFAS Usage

PFAS are surfactants applied in industrial and consumer manufacturing and products and were initially praised for resistance to heat and degradation and making certain products oil, grease, stain, and wrinkle resistant. As such, they were commonly used in food packaging, nonstick cookware, cosmetics, waterproof/stain-resistant fabrics, and other consumer products. In industrial settings, PFAS are common additives in the manufacturing of semiconductors, coatings, electronics, and firefighting foams. Following the tragic fire aboard the aircraft carrier *USS Forrestal* in 1967 off the coast of North Vietnam, the U.S. military began requiring the use of (PFAS-containing) aqueous film-forming foam (AFFF) for fighting fuel fires in high-risk industries like refineries and at airports. Until

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recently, PFAS were used and became ubiquitous in AFFF as well as nonstick coatings, waterproofing, and resins.

Following decades of use by industry and consumers, PFAS have been detected in countless media in the environment, from ice in Antarctica, to the glaciers of Mount Everest, to urban drinking water supplies. In certain cases, PFAS were directly applied to land via firefighting foams and pesticides. PFAS also end up in biosolids—the byproducts of the wastewater treatment process—because of widespread use of PFAS-containing products by households and industry. In other instances, PFAS entered soil and groundwater indirectly from landfill leachate, chemical manufacturing, air emissions, or stormwater runoff. PFAS used in packaging can also wind up in environmental media; upon sampling certain pesticide storage containers that contained PFAS, EPA determined that the PFAS leached from the containers, which were comprised of fluorinated high-density polyethylene (HDPE), into the pesticide that was applied directly to the ground. Ultimately, PFAS used in the pesticide HDPE packaging were detected in soil and groundwater. The U.S. Food & Drug Administration (FDA) concluded that PFAS-containing food packaging also presents a risk of leaching into food.

PFAS can build up in fish, crops, animal feed, irrigation water, and drinking water and can cause adverse human health problems. One report by the Centers for Disease Control and Prevention (CDC) estimates that 97% of Americans have PFAS in their blood at concentrations in the parts per billion (ppb). Possible human health effects include, but are not limited to, increased cholesterol levels, changes in liver enzymes, decreased vaccine response in children, increased risk of high blood pressure, decreases in infant birth weight, and cancer.

Main exposure routes to humans are through consumption of, or contact with, PFAS-contaminated material. Data suggest that diet is the major human exposure pathway for some PFAS, but there is large variability across populations and PFAS compounds. Wastewater-treatment facilities receive PFAS in influent and discharge PFAS in treated effluent and biosolids. Treated effluent can be a source of human PFAS exposure if it is discharged to a water body that ultimately impacts a drinking water source. For example, the probability of detecting PFAS in public drinking supplies in the United States has been significantly associated with the number of wastewater-treatment plants within a watershed. Land application of biosolids or irrigation using reclaimed water can result in accumulation of PFAS in soils and underlying groundwater and lead to PFAS uptake into food or fodder crops.

All of these factors contribute to how state and federal agencies are regulating PFAS, how litigation plays out in the courts, how the regulated community operates their businesses, and how insurance companies manage coverage and claims under old policies and structure new policies. There is no uniform legal or regulatory approach yet, which creates much uncertainty in real property transactions. During preclosing due diligence, "Phase I" environmental site assessments (ESAs) may include increased attention to PFAS in soil and groundwater. A Phase I ESA is a desktop evaluation of a property to identify potential or existing environmental liabilities and does *not* include any sampling or laboratory analyses; it is considered a snapshot in time. In the lens of PFAS contamination, a Phase I ESA could include examination of the operational history of, and potential PFAS-containing products and chemicals manufactured or used on, the property; fire investigation reports; PFAS occurrence data; and government or independent databases.

The (non-enforceable) maximum contaminant levels goals for PFOA and PFOS in drinking water are zero, as EPA maintains that there is no "safe" level of consumption for these chemicals.

The buyer (and/or its lender/investor) in an industrial/commercial real property transaction also may request or require sampling as part of its preclosing due diligence (i.e., a "Phase II" ESA) to include analyses for PFAS, which could be based on factors such as the history of the property (or surrounding properties) and its historical operations, the environmental media at risk of contamination, and which PFAS compounds have or may have contaminated the property. Sampling strategies likely would include a determination of which specific PFAS to sample for, which laboratory methods for analysis are appropriate, and how data should be interpreted. Each of these considerations must fit into the context of the rapidly evolving legal requirements of the state and locality of the real property transaction.

PFAS Regulation

A patchwork quilt of federal and state statutes and regulations has developed, with EPA taking an aggressive stance by recently issuing public drinking water maximum contaminant levels (MCLs) and MCL goals under the Safe Drinking Water Act, 42 U.S.C. §§ 300f *et seq*., for five PFAS compounds and for mixtures containing two or more of PFHxS, PFNA, HFPO-DA, and PFBS. PFAS National Primary Drinking Water Regulation, 89 Fed. Reg. 32,532 (Apr. 26, 2024) (effective June 25, 2024) (to be codified at 40 C.F.R. pts. 141, 142). For PFOA and PFOS, EPA issued an MCL of four parts per trillion (ppt). The (non-enforceable) MCL goals for PFOA and PFOS in drinking water are zero, as EPA maintains that there is no "safe" level of consumption for these chemicals. Many states are following suit, as we are seeing wide-ranging approaches to address PFAS in various media including drinking water as well as soil and groundwater.

Under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901 *et seq*., EPA has proposed to add nine PFAS to the RCRA "hazardous constituents" list (RCRA List) for consideration in RCRA facility assessments, investigations, and/or cleanups. The RCRA List includes chemicals that have toxic, carcinogenic, mutagenic, or teratogenic effects and is used to identify chemicals of concern under RCRA to assess whether to consider waste "hazardous waste." Listing chemicals as RCRA hazardous constituents does not make them, or the wastes containing them, RCRA hazardous wastes. However, should EPA later designate these PFAS as hazardous wastes under RCRA, they would automatically be classified as hazardous substances under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601 *et seq*., triggering CERCLA cleanup oversight and requirements. CERCLA authorizes EPA to seek out parties responsible for any release (or threatened release) of hazardous substances to the environment and require them to perform corrective action (or at least pay for it).

Properties that were previously closed (under federal or state formal CERCLA actions) or are inactive could potentially be reopened for PFAS investigation and, as necessary, remediation.

EPA has also recently issued a final rule designating PFOA and PFOS as hazardous substances under CERCLA (Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 89 Fed. Reg. 39,124 (May 8, 2024) (effective July 8, 2024)) and is considering whether to designate more. Addressing PFAS in the Environment, 88 Fed. Reg. 22,399 (Apr. 13, 2023). EPA's final rule designating PFOA and PFOS as hazardous substances will impact industrial/commercial property transactions. When the American Society for Testing and Material (ASTM) updated its Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process (E1527-21) in February 2021, it suggested that PFAS be assessed as a "business environmental risk" as part of an ASTM-compliant Phase I ESA. Following EPA's designation of PFOA and PFOS as hazardous substances, evaluation for these substances is no longer optional within the Phase I context. Compliance with ASTM E1527-21 can satisfy CERCLA's "All Appropriate Inquiries" (AAI) due diligence requirements, which is a critical component for property buyers, lenders, and sellers to potentially qualify for statutory protections such as the bona fide prospective purchaser protection, lender liability protections, or the innocent landowner defense by demonstrating satisfactory due diligence in assessing environmental risks associated with a property transaction. Under ASTM E1527-21/AAI going forward, potential historical onsite uses/releases of PFOA and PFOS should be identified and evaluated during environmental site assessments. Results from these due diligence efforts may trigger Phase II ESAs involving rigorous testing and potential remediation efforts for contamination generally and now PFAS, thereby potentially affecting property values, transaction timelines, and liability considerations for all parties involved in industrial/commercial real estate transactions.

Properties that were previously closed (under federal or state formal CERCLA actions) or are inactive could potentially be reopened for PFAS investigation and, as necessary, remediation. The reopening of these properties that were closed under CERCLA (or state laws) through consent decrees or orders, potentially responsible party agreements, or private party agreements (such as indemnification agreements in prior transactions) may be challenged by property owners if new investigation and cleanup requirements for PFAS are imposed. In new property transactions with time- and cost-sensitive redevelopment plans, the pace of a CERCLA-driven cleanup could be a concern, especially in light of uncertain and evolving liability and obligations relating to historical PFAS contamination and the exorbitant costs of PFAS remediation in many situations. Stakeholders should further recognize that pursuant to EPA's recent PFAS Enforcement Discretion and Settlement Policy Under CERCLA Memorandum from Assistant Admin. for Enforcement & Compliance Assurance, U.S. EPA, PFAS Enforcement Discretion and Settlement Policy Under CERCLA (Apr. 19, 2024), which directs EPA to concentrate efforts on parties that have played significant roles in releasing or exacerbating the spread of PFAS into the environment, businesses and sites with significant current or former PFAS manufacturing or usage may be implicated.

Both the RCRA and CERCLA regulatory developments at the federal level are significant steps toward national regulation of certain PFAS in the realm of both investigation and cleanup and will undoubtedly pose significant financial and timing burdens on affected property transactions. Of course, all parties to transactions also must be cognizant of analogous state regulatory developments concerning PFAS, as discussed below.

Many states have begun to aggressively address PFAS outside of—or in addition to—federal programs affecting real property. Connecticut, for example, has banned the use of AFFF foam for PFAS, established Health Action Levels for drinking water, and amended its Environmental Condition Assessment Form (ECAF), a form that must be completed when entering a property into a CT voluntary remediation program, the CT Transfer Act (which is in the process of being replaced with a release-based program), or a state-authorized brownfield program. The ECAF now includes a section requiring disclosure of historical

activities that could indicate the potential presence of PFAS (and/or other emerging contaminants of concern). All parties to a transaction should be prepared to assess both federal and state requirements for PFAS disclosures and investigation and cleanup requirements, and manage risks associated with such requirements, which vary depending on the state and the party's role in the transaction.

PFAS and Real Property Transactions

PFAS contamination, whether actual or potential, in soil or groundwater on real property affects the parties to a transaction differently, and these divergent interests can create headaches and hurdles over the course of due diligence and deal negotiation. The key question is whether to test for PFAS and what to do—or what must be done—with the results.

Due diligence for property transactions that adheres to ASTM E1527-21 must now include strategic assessment(s) for PFAS. As in typical (i.e., pre-PFAS-regulated) property transactions, both seller and buyer can conduct due diligence prior to the transaction, which may include establishing baseline environmental conditions, negotiating costs and responsibilities associated with sampling and potential remediation, and assessing the need for environmental risk management strategies, such as environmental insurance (where substantively and cost-effectively available—as discussed below). Parties to the transaction also should consider, for example, the compliance and litigation risks that PFAS detection could present.

For industrial or commercial property transactions, a Phase I ESA could help inform strategic data gathering and risk management or vulnerability assessments. If the site's historical business operations suggest that PFAS may have contaminated the property, certain jurisdictions and legal regimes may trigger the need for a Phase II ESA. Phase II testing can identify the contamination present in soil, groundwater, or other media, if any, prior to a property transaction. Should a buyer or seller in a property transaction choose, or be required by the other party or its lenders/investors, to conduct a Phase II ESA, it must be familiar with federal or state-specific requirements and triggers for disclosure if PFAS sampling is conducted and PFAS is found. All parties should conservatively assume that, given the chemical properties (e.g., slow to biodegrade) of PFAS, some levels of PFAS are present in the environmental media on the property. The question is whether these PFAS findings are evidence of a historical release or spill or merely "background." EPA continues to refine testing protocols for PFAS, expanding approved laboratory analytical methods to detect a broader range of compounds in various environmental media (e.g., drinking water, soil, and groundwater) with improved sensitivity and precision. However, given the extremely low detection levels (i.e., at the limits of confidence of analytical equipment) at which PFAS must be analyzed for, stakeholders should carefully vet and select experienced/qualified environmental consultants and labs to limit cross contamination in the field and/or laboratory. All parties should further recognize the significant costs and laboratory turnaround times associated with PFAS testing and incorporate appropriate timelines to address test results.

PFAS contamination or potential contamination in soil or groundwater on real property can affect buyers, sellers, and lenders/investors differently. Each party should understand whether PFAS testing of soil, groundwater, and/or drinking water will be required. If the relevant jurisdiction does not yet require PFAS testing, stakeholders need to consider whether sampling should even be conducted—a determination that will vary depending on the deal, the value or interest in the property, and the parties' relative bargaining power. Depending on the jurisdiction, each party to a property transaction may be required to disclose findings of PFAS contamination to the other parties involved and/or to a regulatory agency with jurisdiction.

Savvy legal and technical experts can help parties to a property transaction strategize about "what-if" scenarios regarding PFAS.

Buyers may want increased due diligence for PFAS before purchasing to better understand prospective PFAS liabilities and may insist on Phase II ESAs that include sampling for PFAS. Savvy legal and technical experts can help parties to a property transaction strategize about "what-if" scenarios regarding PFAS. Regulatory risk and liability may likely be the front-burner consideration for buyers (and their lenders/investors), who may seek regulatory assurances to best manage the PFAS risks. Property buyers may desire to explore environmental insurance options or contingency provisions (including environmental escrows) for PFAS cleanup risks in such transactions.

Conversely, sellers may want to limit a buyer's due diligence, especially where a jurisdiction's PFAS requirements are not fully developed. In such cases, sellers may be concerned that the discovery of PFAS could result in the buyer walking away from the transaction, leaving the seller with knowledge of a condition that could impair the marketability of the property and/or create reporting or remediation requirements. Property sellers, therefore, may consider conducting a preemptive Phase I ESA or even perhaps a limited Phase II ESA with appropriate sampling for PFAS to allow them to craft a strategy to address the potential for PFAS contamination in their sale of the property.

Lenders and investors also must consider risks to themselves and their borrowers/investment partners. The environmental condition of a property can significantly impact its market value, and these parties should always consider the possibility that down the road they may need to take ownership or control of the property in the event that the borrower fails. As such, these parties should have a good handle on the environmental risks of the property, including whether they are material to the

transaction (whether in an acquisition or refinancing scenario), that could lead to potential cleanup liability or require additional investigation by the buyer/borrower. Lenders/investors should bear in mind that PFAS sampling, laboratory analytical protocols, and cleanup requirements continue to evolve and are becoming increasingly strict (and thus increasingly costly). If PFAS sampling results indicate the presence of PFAS, parties may need to explore remediation options and associated costs, as well as cost/risk allocation. This will require engagement of and close collaboration with environmental consultants and the party that is ultimately responsible for remediation, which may not be the current owner/seller. If remediation is required, it will likely be a long-term effort, invariably requiring post-closure expenditures that the parties will want to, preclosing, fairly allocate in the context of the transaction. All parties should anticipate a protracted post-closing investigation/cleanup timeframe as PFAS remediation technologies are still evolving and are extremely expensive. Parties should anticipate and memorialize important access terms (e.g., timing, insurance, indemnities) and remediation frameworks (e.g., limitations on residential use, groundwater use restrictions, or the ability to use engineering controls and deed restrictions to achieve compliance).

Parties should each track applicable federal, state, and local (if any) requirements to understand whether the actual or potential existence of PFAS in environmental media on a property is a deal-breaker.

Risk Management Strategies in Property Transactions

While the PFAS risks and considerations for buyers, sellers, and lenders/investors in a property transaction are unique, there are some steps that are similar for each stakeholder in its goal to protect itself. Each party should maintain careful coordination between its environmental legal and consulting teams, given the legal and technical uncertainties of PFAS investigation and remediation requirements, and associated future potential toxic tort liabilities. Each party should conduct its own risk assessment, unique to its goals and risk tolerance, and consider opportunities for prudent risk management. Contract terms should be negotiated to transparently identify how PFAS investigation and remediation will be conducted, who will be paying for it, and how potential liability, whether for future cleanup obligations or in the event of toxic tort (bodily injury or property damage) claims, will be allocated. Parties also should consider whether future property uses should be restricted (i.e., requiring that the property be used only for industrial or commercial activities and not residential purposes). Parties also should consider consulting (without identifying the deal or property in question) with federal, state, or local regulatory agencies to understand the jurisdiction's current and potential approaches to PFAS generally and view on any actual PFAS-related data or issues specifically. Although the PFAS risks have tightened the availability in the environmental insurance market of comprehensive PFAS coverage, parties should coordinate with an experienced environmental insurance broker and legal team to evaluate whether tailored environmental insurance would be available that could provide some coverage for PFAS-related claims (e.g., cleanup, property damage, and/or bodily injury coverage) and, where appropriate, conduct an "archeological dig" on historical property insurance policies (particularly those that predate pollution exclusions) to determine what coverage may be available for actual or potential PFAS claims associated with prior operations on the property.

Despite, or perhaps because of, the evolving and sometimes conflicting PFAS legal and technical landscape, stakeholders in a property transaction will benefit from developing appropriate PFAS risk management plans. Parties should each track applicable federal, state, and local (if any) requirements to understand whether the actual or potential existence of PFAS in environmental media on a property is a deal-breaker. Parties should bring their legal and technical environmental team into the deal early to help vet and plan for handling these issues and the ultimate allocation of potential PFAS risks and liabilities. Even with all the uncertainty associated with PFAS, it shouldn't be a deal killer in most instances as there are opportunities for appropriate risk management and allocation strategies that can permit the transaction to close. But to take poetic license with an old axiom, the bottom line for all parties evaluating PFAS risks in property transactions: "if you PFail to plan, plan to PFail."

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