



EPA Releases and Requests Public Comment on Interim Guidance for Destroying and Disposing of Certain PFAS

On December 18, 2020, the U.S. Environmental Protection Agency (EPA) released for public comment interim guidance on the destruction and disposal of per- and polyfluoroalkyl substances (PFAS) and materials containing PFAS (Interim Guidance; available for download [here](#)). PFAS are a large group of manmade chemicals that have been used in wide-ranging consumer, commercial, and industrial applications since the 1940s and more recently have been discovered in various environmental media (e.g., drinking water sources), plants, animals, and humans. Because PFAS do not tend to break down naturally, and evidence suggests that exposure to PFAS chemicals can lead to adverse health effects, developing methods to treat, dispose of, and destroy PFAS has been viewed by stakeholders as a necessary step to address PFAS in the environment.

The Interim Guidance, which EPA was statutorily obligated to publish within one year of the enactment of the National Defense Authorization Act for Fiscal Year 2020 (FY20 NDAA), discusses certain treatment and disposal technologies that may be effective in destroying or disposing of PFAS and PFAS-containing materials. More broadly, it represents another formal step EPA has taken to address PFAS in the environment, coming nearly two years after EPA released its PFAS Action Plan.

In addition to providing a background on PFAS, the Interim Guidance generally covers four topics: (1) the PFAS and PFAS-containing materials to which it applies; (2) the applicable destruction/disposal technologies; (3) considerations for potentially vulnerable populations living near destruction/disposal sites; and (4) ongoing and planned research and development. The Interim Guidance is based on currently available research and science, which is limited. As such, EPA has identified knowledge gaps, uncertainties, and research areas that, if resolved, would inform future recommendations. As EPA continues to conduct research and accumulate information, the regulated community can expect the agency to revise the Interim Guidance (which must be done at least every three years in accordance with the FY20 NDAA).

To What PFAS Does the Interim Guidance Apply?

The scope of the Interim Guidance is limited to certain types of PFAS and PFAS-containing materials, all of which were required to be included by the FY20 NDAA. They are: aqueous film-forming foam (AFFF); soils and biosolids; textiles treated with PFAS (non-consumer goods); spent filters, membranes, resins, granular carbon, and other water treatment waste; landfill leachate containing PFAS; and solid, liquid, or gas waste streams containing PFAS from facilities manufacturing or using PFAS. Despite the limited scope, EPA says that the discussed technologies may be

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effective against other types of PFAS. Notably, the Interim Guidance is not intended to address the disposal or destruction of PFAS-containing consumer products (e.g., non-stick cookware), but EPA has not indicated whether such materials will be covered by future revisions (or separate guidance).

What PFAS Destruction/Disposal Methods Does the Interim Guidance Identify?

The Interim Guidance discusses and divides currently available destruction and disposal technologies according to the PFAS's physical phase: solid (e.g., biosolids, spent treatment materials, contaminated soils, and textiles); liquid (e.g., landfill leachate, AFFF, and solvents); and gas (e.g., landfill gas and emissions from manufacture, use, or destruction). EPA has determined that thermal treatment may be effective for all three physical phases, while landfill disposal and underground injection may be effective disposal technologies for solid phase PFAS and liquid phase PFAS, respectively.

Thermal Destruction: EPA indicates that PFAS-containing waste may be destroyed by various hazardous waste thermal treatment devices and processes, including in commercial incinerators, cement kilns, and lightweight aggregate kilns (LWAKS). These technologies are subject to RCRA and Clean Air Act permitting and oversight, as well as other operating requirements, and are used to effectively destroy other constituents, such as organic chemicals. The primary outstanding question is whether they can achieve the same efficacy for PFAS. Other potentially effective destruction technologies listed in the Interim Guidance include carbon reactivation units, non-hazardous waste combustion sources (e.g., sewage sludge incinerators), and thermal oxidizers.

Uncertainties common to these technologies include their ability to completely destroy PFAS (and byproducts from incomplete destruction), releases of PFAS or byproducts via emissions or secondary waste streams (e.g., scrubber water or bottom/fly ash), and testing monitoring limitations. Potentially adding further complications, EPA admits that the efficacy of a treatment process may vary even for sources within the same category. From these and other uncertainties, EPA concluded that it requires additional research to better understand these technologies and make more refined recommendations.

Landfill Disposal: The Interim Guidance also targets landfilling as a potential method of disposal of solid phase PFAS and PFAS-containing materials, recognizing that due to PFAS's ubiquity, the chemicals are already being disposed of in regular waste management pathways. EPA identifies both hazardous waste landfills and municipal solid waste (MSW) landfills as probable disposal options, but (like thermal destruction) highlights potential differences between the two. Namely, while permitted hazardous waste landfills generally are equipped with extensive environmental controls (e.g., double-liners, leak detection, gas and leachate management, etc.) and employ related practices such as detailed record keeping, MSW landfills (especially older landfills) may not. Accordingly, EPA believes hazardous waste landfills are probably most effective at managing PFAS, while the effectiveness of other landfills likely turns on their respective control technologies and management systems.

Like its evaluation of thermal destruction, there is a dearth of specific analysis concerning how PFAS behave in landfills. EPA seeks to better understand, among other things, PFAS's effect on landfill liner integrity, the presence of PFAS in landfill gaseous emissions, PFAS concentrations in landfill leachate and possible treatment of same (which may implicate other destruction/disposal methods), and how PFAS interact with other constituents. These uncertainties are driving EPA's further evaluation of the efficacy of landfilling PFAS and PFAS-containing wastes.

Underground Injection: The Interim Guidance identifies underground injection (UI) as a viable option to dispose of liquid PFAS and PFAS-containing materials, noting that like landfill disposal, this practice is already occurring (applicable to myriad constituents, including PFAS). Generally, this process involves injecting the liquid wastes into a deep well (known as a Class I well) below the lowermost underground sources of drinking water and into a confined geologic formation. EPA has found Class I wells categorized for hazardous wastes well suited for PFAS because they are constructed, permitted, operated, and monitored to protect drinking water sources. Nevertheless, whether a specific Class I well is suitable depends on site-specific factors such as local geology.

The primary uncertainty identified by EPA regarding UI of PFAS waste is understanding the long-term fate and transport of the wastes. Such understanding is not only limited by a lack of applicable studies, but also the wide-ranging chemical properties of specific PFAS chemicals, how they may interact with co-contaminants, and the makeup of the applicable geological formations. EPA indicates that researching and understanding these uncertainties could support future UI permits for PFAS wastes.

Storage: EPA does not consider storage of PFAS and PFAS-containing materials a viable disposal or destruction technology. The agency recognizes, however, that storage may be an appropriate, temporary strategy in cases where uncertainties regarding the discussed technologies preclude immediate disposal or destruction of the PFAS.

How Does the Interim Guidance Address Potentially Vulnerable Populations?

As required by the FY20 NDAA, the Interim Guidance also considers the potential for PFAS releases during destruction or disposal and the impacts on potentially vulnerable populations living near destruction and disposal sites. It does this by identifying potential releases and exposure pathways (e.g., through conceptual site models), defining potentially vulnerable populations (e.g., through risk assessments), and considering community engagement (which may be required in certain circumstances). Specifically, EPA recognizes that intrinsic (i.e., biological) risks and extrinsic (i.e., external) factors may combine to create environmental justice concerns, “which encompass the disproportionate exposure and impacts associated with environmental releases” on minority populations, low-income populations, and/or indigenous populations.

The Interim Guidance primarily refers stakeholders, including the public, to other guidance and tools that may more specifically inform their evaluation and decision-making. Some of these resources address topics and considerations such as assessing environmental justice (e.g., the disproportionately high and adverse human health or environmental effects of actions on minority and low-income populations), risks to children, and risks to tribal and indigenous lifeways.

What is EPA Researching Now and What Does it Plan to Research in the Future?

EPA concludes the Interim Guidance by detailing its current informational needs, which broadly consist of research to: (1) better characterize the multi-media PFAS-containing materials targeted for destruction or disposal; and (2) measure and assess existing methods, improve existing methods, and/or develop new methods for PFAS destruction/disposal. One of EPA’s near-term goals (1-2 years), is focusing on developing additional sampling and analysis methods for PFAS in various media (e.g., air emissions, wastes, water, and solids).

Long-term (3+ years) initiatives include developing monitoring technologies and modeling to measure and predict PFAS fate, transport, and deposition in the air. Further, EPA desires to partner with (or continue to partner with) other government agencies, industry, and academia to coordinate research and develop innovative technologies. EPA tracks the status of its research and development on its [website](#). Completing these goals should inform future revisions of the Interim Guidance, which, as noted, must occur at least every three years. EPA is accepting comments on the Interim Guidance through February 22, 2021.

Publication of the Interim Guidance is just one of the PFAS-related actions EPA took in the weeks prior to President Joe Biden taking office. With the change in administration and agency personnel, it remains to be seen how EPA will further address these and other actions. Regardless, Babst Calland’s [environmental attorneys](#) will continue to track the Interim Guidance’s progress and are available to assist you with preparing comments or with other PFAS-related matters. For more information, please contact Matthew C. Wood at (412) 394-6583 or mwood@babstcalland.com, or any of our other remediation attorneys.

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