

October 15, 2024

Barry Breen
Acting Assistant Administrator
Office of Land and Emergency Management
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue, N.W. 7101 M
Washington, DC 20460

RE: Interim Guidance on PFAS Disposal and Destruction [EPA-HQ-OLEM-2020-0527; FRL-11611-01 OLEM]

Dear Acting Assistant Administrator Breen:

The undersigned organizations appreciate the opportunity to provide feedback on the Environmental Protection Agency's (EPA or the agency) proposed Interim Guidance on per- and polyfluoroalkyl substances (PFAS) Disposal and Destruction (Interim Guidance). [EPA-HQ-OLEM-2020-0527; FRL-11611-01 OLEM, April 14, 2024]

We are pleased that the agency had updated the Interim Guidance as required by the National Defense Authorization Act of 2020 (NDAA). Better awareness of end-of-life issues regarding key chemistries, products and applications, and technologies and their waste streams used for cleanup are critical to enabling efforts to address PFAS in the environment. This understanding is necessary to move beyond the current patchwork of state approaches to PFAS management. Developing clear and consistent guidelines for managing wastes and disposing of PFAS and products containing these chemistries are urgently needed to preserve access to the role of essential chemistries in products Americans rely on every day.¹ As part of this approach, it is critical that EPA considers and differentiates the wide variety of properties represented by this group of substances and avoids making overly broad statements about the uses and properties of PFAS.

The following are recommendations for your consideration:

- **Finalize the guidance and update it as needed.** The NDAA provisions compel the agency to issue final guidance every three years. The previous 2021 interim guidance was never finalized by the agency, which made it less likely that stakeholders (most importantly state regulators who are typically the entities authorized to issue permits) would have confidence in implementing its recommendations. We urge the agency to make appropriate adjustments to the process and schedule to ensure meaningful outcomes and to follow through and finalize this important disposal and destruction guidance.

¹<https://www.uschamber.com/environment/essential-chemistries-providing-benefits-across-the-u-s-economy>

These changes should include issuing an updated guidance document as needed and not necessarily just once every three years. We appreciate the Congressional mandate and the agency's efforts to compile and assess such a large quantity of information, but more regular updates as needed (e.g., annually) are appropriate considering the fast-moving regulatory, scientific, and technical environment. All stakeholders need timely guidance to confidently address destruction and disposal. EPA states in the Executive Summary that EPA "may explore opportunities to provide more frequent technical updates as information becomes available." We strongly recommend that EPA provide notice and opportunity for comment on updates or addendums (not necessarily a full rewrite of the document) as needed, which would better serve stakeholders and the agency's mission.

- **Formalize a process to engage stakeholders and experts.** EPA should develop a formal approach to ensure ongoing engagement with leading experts and implementers in each PFAS destruction methods proposed. We appreciate that EPA had discussions with select academia and companies. This aside, the business community (e.g., manufacturers, technology suppliers, and the value chain) was not meaningfully engaged and should be included in the list of audiences. This engagement should include:
 - Establishing a stakeholder working group with opportunities for additional stakeholder input that includes active participation from the business community to assist in expanding reliable granulated activated carbon (GAC) reactivation. There are only four RCRA permitted reactivation facilities across the U.S. This fact will significantly restrict our national capacity and capability to reuse spent filters (see circularity below) and will thus increase operations and maintenance costs for local governments, the Department of Defense (DoD), and private businesses. This working group should also help define the parameters and conditions for adequate destruction of fluorinated compounds, including products of incomplete combustion (PICs)
- **Improve the clarity and useability of the Interim Guidance by more clearly distinguishing among various specific types of PFAS addressed.** Throughout the thermal treatment sections in the Interim Guidance, EPA uses the term "PFAS" to refer to both materials being thermally treated and to molecules emitted from thermal treatment. The term PFAS is even used when the molecules emitted are PICs or products of incomplete destruction, distinct from the PFAS materials undergoing thermal treatment. Such widespread use of the term PFAS in the Interim Guidance tends to confuse the reader.

Conversely, some parts of the Interim Guidance (e.g., Table 3-4) are clear in distinguishing between "short-chain PFAS" and "long-chain PFAS." To improve the clarity and useability of the Interim Guidance, we urge the agency to adopt a set of commonly used terms such as "short-chain PFAS", "long-chain PFAS", "volatile PFAS", and "fluoropolymer." We further recommend that EPA use these more

specific terms in place of "PFAS" wherever possible when revising the Interim Guidance.

- **Leverage existing thermal technologies.** The agency should partner with researchers, manufacturers, technology vendors, and other experts to expedite the collection of the data necessary to satisfy concerns associated with the guidance's limited endorsement of existing PFAS thermal destruction technologies (e.g., commercial incinerators, cement kilns, and lightweight aggregate kilns, thermal desorption units, and GAC reactivation units with thermal oxidizers). The agency's extremely conservative approach to assessing the science has only generated confusion and frustration, especially among state regulators who look to the federal government for effective guidance. Stakeholders require low risk, cost effective technologies. Limiting the thermal destruction discussion to a narrow set of research to the exclusion of newer innovative ideas is standing in the way of needed cleanups.

For example, the Interim Guidance document should:

- When outlining operating conditions, discuss in detail more than oxidizer residence time and temperature. Issues such as managing reactor design for turbulence, waste-oxidant mixing ratios, mitigating air emissions, each have an important role to play in the optimization and economics of future of PFAS thermal destruction.
 - Address the use of surrogates as an effective monitoring methodology. These and other issues were all given limited discussion in the current version of the Interim Guidance.
 - Explore a ranking that does not use just an individual parameter, such as temperature.
 - Support the DoD analysis of the previous Interim Guidance considering the latest studies and additional information presented in its guidance on implementation of section 330 of the FY 2020 NDAA. DoD has identified hazardous waste incinerators as an available destruction option that maximizes reduction of PFAS releases or emissions to the environment and human health exposures.²
- **Focus on the best science when evaluating PFAS destruction technologies.** The framework discussed in Section 6.b goes beyond the evaluation of actual science. As noted on page 121 of the document, EPA indicates that the evaluation framework is comprised of several topical sections: technology, material, analytical methods, disposal/destruction efficacy, community considerations, and regulatory requirements.

² chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.acq.osd.mil/eie/eer/ecc/pfas/docs/news/Memorandum_for_Interim_Guidance_on_Destruction_or_Disposal_of_Materials_Containing_PFAS_in_the_U.S.pdf

A scientifically sound framework should focus on assessing the actual readiness of a technology and its ability to meet health-based or technology-based emissions should be based on the best science and technical issues. Other considerations, including those related to community and environmental justice considerations and siting are factors that should be evaluated during the siting and/or permitting of a technology, and if necessary, should be addressed in a separate section of the document.

EPA should provide more evidence on why temperatures above 1,100 deg C are needed to ensure destruction of PFAS. The study that EPA is citing does not have enough data to prove destruction rate is higher at 1,100 degrees C vs 1,000 degrees C. The study also lacks a sufficient explanation on what destruction rate would be considered acceptable. Given that there are few thermal destruction facilities in the U.S. that can meet the 1,100 deg C recommendation, the impact of raising the recommended temperature from 1,000 deg C (in the 2020 guidance) to 1,100 deg C is a barrier to feasible thermal destruction options and warrants further investigation.

- **Provide flexibility.** The agency should promote flexibility in recommending options that ensure the safe disposal and destruction of PFAS. The guidance should reflect not only a variation of available disposal and destruction methods, but what options are the most effective for a particular set or range of circumstances and costs, as supported by data and research. The technology evaluation framework is a good start but is too restrictive and should be reworked.
- **Prioritize approaches based on performance data.** While the document focuses on limiting releases, across the board there is a lack of performance data to enable and prioritize appropriate options. The coalition acknowledges that the agency has asked companies to share their performance data. States are hesitant to issue research and development (R&D) permits for PFAS applications and thus many technology vendors find it difficult to test at scale and generate the performance data EPA requests. We suggest that the agency:
 - Offer limited liability protection or other incentives and/or assurances for even the risks associated with short-term at scale R&D work, and
 - Champion solutions and help generate the requested at scale performance data by bringing together all the necessary stakeholders (landowners, states, technology vendors, and communities) and encouraging them to actively partner to find solutions.
- **Promote circular solutions when possible.** The agency should encourage and promote circular solutions and recycling where possible. For example:
 - Remediated soil—Another excellent example is the beneficial reuse of remediated soil (previously containing some PFAS). It is anticipated that millions of tons of contaminated soil will require cleanup. It has been shown that contaminated soil

can be appropriately remediated, and beneficial reuse of these remediated soils should be encouraged. Disposal of these soils into landfill is not optimal for state landfill management strategies, risk reduction, and a circular economy in general. A realistic cleanup level based on the best science and risk should be established to guide appropriate remediation and circular management options.

- Remediated sediment or dredged material — Excavated sediment also has an excellent track record for beneficial use, particularly given its generally very low cleanup criteria. Like soil, contaminated sediment is another high-volume stream of PFAS waste and beneficial use should be encouraged where risk assessment supports.
- **Address hazardous waste landfill capacity needs.** In response to the proposed RCRA and final CERCLA rules, we understand that solid waste landfills are generally unwilling to accept PFAS containing wastes. Further contributing to this issue is the guidance’s failure to identify PFAS wastes that would be appropriate for disposal in solid waste landfills, stating that “relatively high” concentration waste – without defining “relatively high”— should be disposed of in Subtitle C hazardous waste landfills. The anticipated volume of these wastes, from water treatment plant residuals to contaminated site cleanups, including the DoD cleanups around military bases and associated communities, indicate there is a substantial need to increase our national hazardous waste landfill capacity. The guidance should recognize this challenge and the shortfalls with interim storage options as significant areas for discussion.
- **Encourage broader standardization of PFAS management.** PFAS and/or PFAS contaminated materials are not managed exclusively within the boundaries of one state. The inconsistent regulation of PFAS by states makes the interstate movement and management and ultimately cleanup of these materials (e.g., landfill, thermal destruction, beneficial reuse) difficult and more costly. The guidance should advance a common understanding of the characterization of wastes and management options that are available and can be utilized based on site-specific situations.

In summary, PFAS disposal and destruction requires a “toolbox” of solutions. When one considers the variation in media (air, water, solid), concentration (low, med, high), and volume (a 55-gal drum of AFFF to 1000’s of yd³ of contaminated soil), stakeholders must have a full suite of management options available to address the often unique circumstances associated with each PFAS management and remediation situation. EPA needs to upgrade its efforts to help all stakeholders accelerate appropriate cleanup of PFAS in the environment, and this begins with an improved PFAS disposal and destruction guidance document.

We stand ready to assist you as you advance and finalize the guidance.

Sincerely,

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American Petroleum Institute
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