

HOW WILL EPA'S PROPOSED CERCLA HAZARDOUS SUBSTANCE DESIGNATION OF PFOA AND PFOS IMPACT THE ENVIRONMENTAL DUE DILIGENCE PRACTICE?

Will the new rule result in a significant increase in Recognized Environmental Conditions?

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The environmental due diligence practice includes the performance of Phase I Environmental Site Assessments (ESAs) to evaluate the presence or absence of recognized environmental conditions (RECs) associated with the release of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances (H.S.s). These ESAs also cover petroleum products released to the environment. Phase I ESAs are common in conjunction with property transactions and refinancing. Preparing an ESA report will generally comply with the following U.S. Environmental Protection Agency (EPA) regulation and an industry consensus guidance document or ASTM standard:

- EPA regulations: 40 CFR 312 - Innocent Landowners, Standards for Conducting All Appropriate Inquiries, and
- ASTM standard E1527 - Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. The most recent version of the ASTM standard is E1527-21, effective February 13, 2023. EPA has indicated that the prior version, E1527-13, will continue to be recognized for another year through February 13, 2024.

As anticipated, on September 6, 2022, EPA published a proposed rule in the Federal Registerⁱ designating two per- and polyfluoroalkyl substances (collectively, PFAS) constituents as [CERCLA Hazardous Substances](#) (Reference 87 FR54415 - 54442). Once the CERCLA hazardous substance (H.S.) rule becomes final (anticipated in 2023 or 2024), it will be mandatory to consider these hazardous PFAS constituents when performing ESAs and identifying RECs. Because of the ubiquitous use of PFAS, often called “forever chemicals,” some Environmental Professionals (EPs) are concerned that PFAS-related RECs will be commonplace. This paper discusses some anticipated impacts of the PFAS H.S. rule on the Phase I ESA practice.

THE SCOPE OF THE CERCLA HS LISTING IS LIMITED

Note that the proposed rule does not cover the universe of PFAS constituents, which some have estimated at over 10,000 constituents. Rather, the proposed H.S. rule is limited to two specific PFAS: perfluorooctanoic acid (PFOA, CAS 335-67-1) and perfluorooctanesulfonic acid (PFOS, CAS 1763-23-1), including their salts, and their linear and branched structural isomers.ⁱⁱ While this is a small subset of PFAS constituents, PFOA and PFOS are reportedly among the most commonly used.

POTENTIAL SOURCES OF PFOA AND PFOS

PFAS constituents are present in a very wide variety of commercial and industrial products. Their widespread use has been due, in part, to their hydrophobic (water-repelling) and oleophobic (oil-repelling) properties. PFAS uses include stain repellents for upholstery, carpeting, clothing, etc. Other reported uses include the manufacturing of non-stick cookware, electric wire casing, pipe thread seal

tape, surfactants and emulsifiers, vapor suppressants in metal plating operations, waterproof and breathable membranes, food wrappers and packaging, toilet paper, and many more.

Much of the literature regarding the use of PFAS in industrial processes and consumer products is not specific to individual PFAS constituents. When performing ESAs, particularly at industrial facilities, the E.P. will face the challenge of evaluating whether the subject facility used or released PFOA and PFOS, as opposed to other PFAS constituents not designated as CERCLA hazardous substances, and whether the use or release resulted in impacts to the subject property.

The Executive Summary (Section III.A) of the EPA's proposed rule indicates that the two constituents proposed for H.S. designation also have very broad usage: "PFOA and PFOS have historically been found in or used in making a wide range of consumer products including carpets, clothing, fabrics for furniture, and packaging for food and cookware that are resistant to water, grease or stains. They are also used for firefighting at airfields and in a number of industrial processes."

DOES THE MERE PRESENCE OF PFOA/PFOS IN PRODUCTS CONSTITUTE A RECOGNIZED ENVIRONMENTAL CONDITION?

In most cases, the answer is no.

The concept of select hazardous substances common in consumer and industrial products is not new or rare. Here are a few examples:

- **Copper and copper compounds** are present in electronic equipment such as circuit boards and wiring used in computers, appliances, building electrical systems, etc.
- **Chromium** is a common component of many stainless steel alloys used in hardware, silverware, cooking utensils, and plated products. Chromium is also present in tanned leather.
- **Phthalates** are present in many plastics (e.g., PVC) and plastic products.

With the potential exception of lead in lead-based paint or lead pipes, the potential leaching or release of CERCLA H.S.s from many commercial products, industrial products, and building materials is often considered a de minimis condition, i.e., not a REC.

KEY REC DEFINITIONS

The mere presence of an H.S. (or H.S.s) in products or building materials does not constitute a REC. There must be [a] release of a hazardous substance or petroleum product to the environment – soil, water, [or] air that results in the presence of the H.S. "in, on, or at" the subject property or a "material threat" of a future release. And, the release has to be significant (i.e., not de minimis). Thus, E.P.s must understand the definitions of a few relevant terms, as provided in ASTM E1527-21:

- 3.2.73 *recognized environmental conditions*, n—(1) the presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* due to a *release* to the *environment*; (2) the likely presence of *hazardous substances* or *petroleum products* in, on, or at the *subject property* due to a *release* or likely *release* to the *environment*; or (3) the presence of *hazardous substances*

or *petroleum products* in, on, or at the *subject property* under conditions that pose a *material threat* of a future release to the *environment*.

- 3.2.20-*de minimis condition*, n – a condition related to a release that generally does not present a threat to human health or the *environment* and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. A condition determined to be a *de minimis condition* is not a *recognized environmental condition* nor a *controlled recognized environmental condition*.

Per ASTM convention, Section 3.2 (Definitions) of E1527-21 defines terms in *italics*.

While PFAS are present in many consumer products and building materials, we anticipate many uses will be considered *de minimis* (based on current PFAS knowledge, regulation, and toxicity). For example:

- PFAS leaching from outdoor furniture. PFAS constituents are known to be used in the treatment of some outdoor furniture. As a result of weathering and precipitation, trace amounts of PFAS may likely release from outdoor furniture. However, such releases generally fall within the definition of a *de minimis condition*.
- PFAS leaching from littered fast food wrappers and food containers. PFAS constituents are in some food wrappers and containers due to their oleophobic and hydrophobic properties. Thus, leaching of trace amounts of PFAS from food packaging litter is likely. However, such releases are generally within the definition of a *de minimis condition*.

Considering the widespread historical use of PFAS, it would not be challenging to identify similar examples that fall within the *de minimis* definition and REC exemption.

EXAMPLES OF PFOA/PFOS CONTAMINATION THAT MAY RESULT IN RECS

A recent articleⁱⁱⁱ by Salvatore and others identifies the following categories of facilities where PFAS contamination can be presumed, including (1) fluorinated aqueous film-forming foam discharge sites, (2) certain industrial facilities, and (3) sites related to PFAS waste.

In addition to the presumptive categories identified above, sites that have received biosolids (aka processed sewage sludge) may concern E.P.s performing ESAs. Land application of biosolids is a common practice in the U.S. at sites such as agricultural fields, golf courses, home gardens, and other landscaping locations^{iv}. While specific PFAS constituents present in biosolids likely vary from source to source, PFOA and PFOS are known to be commonly present. Further assessment of PFAS, including PFOA and PFOS, in sewage and biosolids, are among the many areas of EPA's ongoing PFAS efforts under the PFAS Strategic Roadmap^v to address.

On a related note, and with respect to ESAs – while EPA has regulated the land application of biosolids since the last century, we are unaware of databases or other readily available records that identify sites that have received biosolids or the quantities of biosolids that such sites have received. Thus, the E.P. preparing an ESA will be required to consider the potential historical application of biosolids when evaluating site history records at land application sites.

The September 6, 2022, Federal Register announcement lists U.S. industrial entities that may be affected by EPA's proposed PFOA and PFOS rule. The following EPA list can serve as a guide to an E.P. performing ESAs at such facilities:

NAICS CODE	LIST OF POTENTIALLY AFFECTED US INDUSTRIAL FACILITIES
488119	Aviation operations
314110	Carpet manufacturers
811192	Car washes
325	Chemical manufacturing
332813	Chrome electroplating, anodizing and etching services
325510	Coatings, paints, and varnish manufacturers
325998	Firefighting foam manufacturers
562212	Landfills
339112	Medical devices
922160	Municipal fire departments and firefighting training centers, including Federal agencies that use, trained with, and tested firefighting foams
322121 & 322130	Paper mills
325320	Pesticides and insecticides
324	Petroleum and coal product manufacturing
324110 & 424710	Petroleum refineries and terminals
352992	Photographic film manufacturers
325612	Polish, was, and cleaning product manufacturers
325211	Polymer manufacturers
323111 & 325910	Printing facilities where inks are used in photolithography
313210, 313220, 313230, 313240, & 313320	Textile mills (textiles and upholstery)
562	Waste management and remediation services
221320	Wastewater treatment plants

FINAL THOUGHTS

Bottom line. PFAS constituents are present in a broad range of commercial and industrial products. PFAS-containing products are likely to present at many sites, and releases of trace amounts of PFAS from such products to the environment are likely common. However, PFAS leaching from many commercial and industrial products will likely be considered de minimis per the ASTM definition. Non-de minimis releases are more likely to be associated with certain industrial facilities (as identified in EPA's proposed H.S. Rule), PFAS waste sites, PFAS aqueous fil-forming foam (AFFF) sites, and potentially some biosolids application sites.

While media attention to the PFAS issue has mushroomed in recent years, and a tremendous amount of PFAS info has come to light recently, our understanding of PFAS use and science is still in the early stages. We still have much to research and learn regarding the toxicity, environmental fate and transport, chemical/physical properties, and human exposure to individual PFAS chemicals. As our PFAS knowledge continues to evolve, so will the application of this knowledge to the environmental due diligence practice.

AUTHOR BIOS

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ⁱ <https://www.federalregister.gov/documents/2022/09/06/2022-18657/designation-of-perfluorooctanoic-acid-pfoa-and-perfluorooctanesulfonic-acid-pfos-as-cercla-hazardous>

ⁱⁱ The HS designation of the salts and structural isomers of PFOA and PFOS may be considered somewhat non-specific, leading to confusion, particularly among non-chemists. As such, we hope that the final HS rule will provide more clarity and specificity – e.g., a list of specific PFOA and PFOS salts and isomers, including CAS numbers.

ⁱⁱⁱ Presumptive Contamination: A New Approach to PFAS Contamination Based on Likely Sources (Salvatore, D., K. Mok, K. Garret, G. Poudrier, P. Brown, L. Birnbaum, G. Foldenman, M. Miller, S. Patton, M. Poehlein, J. Varshavsky) In Environmental Science and Technology Letters, 2022 <https://doi.org/10.1021/acs.eslett.2c00502>

^{iv} <https://www.epa.gov/system/files/styles/large/private/images/2021-07/biosolids-use-disposal-potws-2019.png?itok=FbNe4iKp>, October 21, 2022.

^v <https://www.epa.gov/pfas/pfas-strategic-roadmap-epas-commitments-action-2021-2024>