

PFAS – ENVIRONMENTAL DUE DILIGENCE CONSIDERATIONS

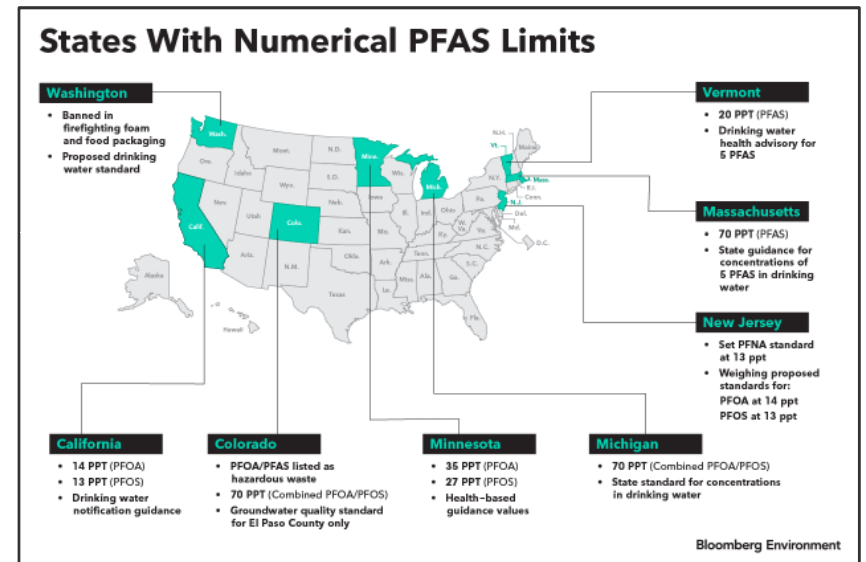
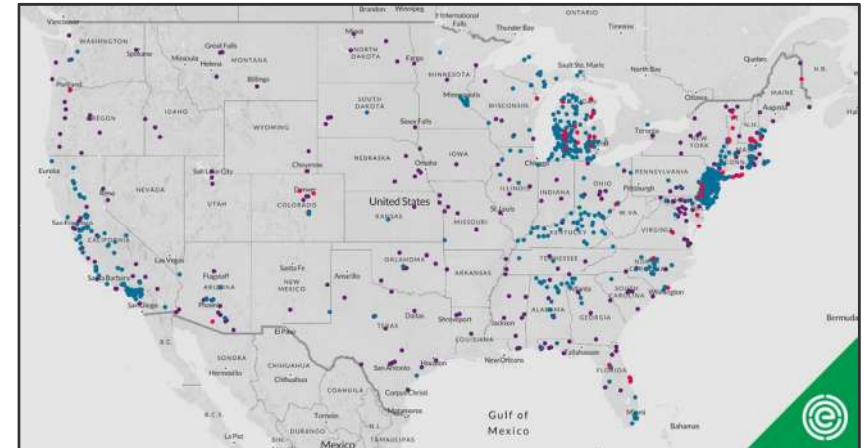
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PFAS – GROWING DATA AND REGULATION

- Various programs are analyzing for PFAS with increasingly **lower analytical limits** → detections.
 - EPA collected data on the occurrence of six PFAS in Public Water Systems from 2013-15 under the Third Unregulated Contaminant Monitoring Rule (UCMR3).
 - Findings → identify sources for investigation.
- States are regulating ahead of EPA.
 - Some states have undertaken designation of certain PFAS as hazardous or toxic substances.
 - Some state remediation programs are broader than CERCLA and have promulgated PFAS screening levels.
- EPA appears on the way to list PFAS as hazardous substances, but has yet to do so.

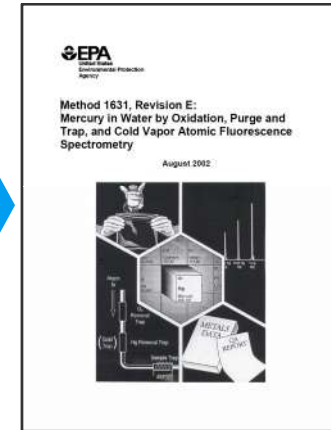
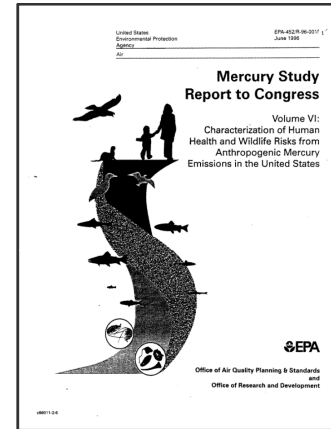


A FAMILIAR STORY...

- Evolution of PFAS data and regulation is similar to that for mercury in late 1990s.
- Mercury became a focus for regulation as a persistent bioaccumulative toxin (PBT).
- Key aspect of regulatory evolution included development of EPA Method 1631:
 - Detection limits → 200 ppb to **0.5 ppb**
 - NPDES limits → 200 ppb to **0.5 ppb**

→ **Dentists** were identified as a substantial mercury source due to use of "silver fillings" (amalgams).

→ State and city regulations requiring costly amalgam separators and waste handling.



A FAMILIAR STORY...

Local Impact: *Wichita, KS was among the first US cities to require dentists to use amalgam separators – in 2001 – over 15 years before federal regulation...*

Wichita, Kansas

In April 2000, the Wichita Department of Water and Sewer initiated a Mercury Code of Management Practices (CMP) for the city. The CMP requires dental offices in Wichita to be equipped with devices to reduce the amount of amalgam discharged into POTWs. Phase 1 was an effort to encourage voluntary use of technologies beyond the chair-side trap and vacuum filter (e.g., an amalgam separator). Phase 2 of the program would have required mandatory separators if the voluntary effort were not successful. Phase 2 of the program was never implemented because originally 60 percent of the dental community complied voluntarily. According to ADA, as of 2007, 98 percent of the 200 dental offices in the city have complied with the Mercury CMP Program without a mandatory separator requirement (Walsh, 2007).

Effective July 14, 2017, the U.S. EPA adopted the Effluent Limitations Guidelines and Standards for the Dental Category Final Rule to reduce the discharge of mercury-containing amalgam into POTWs from dental practices (40 CFR Part 441).

Source: [epa.gov/eg/dental-effluent-guidelines](https://www.epa.gov/eg/dental-effluent-guidelines)

ENVIRONMENTAL DUE DILIGENCE

- Most common framework for is the **ASTM E1527-13** *Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*.
- CERCLA provides protections for innocent landowners and bona fide prospective purchasers **if** they complete "All Appropriate Inquiry (AAI)".
- EPA **hasn't** recognized PFAS as a hazardous substance:
 - PFAS are not regulated under CERCLA or the AAI rule
 - PFAS are outside of the scope of the ASTM Standard.
- But, the ASTM Standard is a "**minimum**" framework, and recognizes that other environmental liabilities can be concurrently evaluated as "*Non-Scope Issues*"
 - ASTM Task Group is currently revising the E1527 standard – on track to complete by end of 2021.

Designation: E1527-13


Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process

This standard is used only for the first step of the process (Phase I) of an environmental site assessment. It does not cover the second step of the process (Phase II) or the third step of the process (Phase III).


Example PFAS Product Applications

Fluoropolymers


MEDICAL DEVICES




AUTOMOTIVE FUEL LINES




CABLE INSULATION




ELECTRONICS



NON-STICK COOKWARE




FUEL CELLS




Fluororepellents & Fluorosurfactants


MEDICAL GARMENTS




FIRST RESPONDER GEAR




CARPET




CLASS B FIRE FIGHTING FOAM




FOOD PACKAGING




OUTDOOR PERFORMANCE APPAREL




UPHOLSTERY



PAINTS/COATINGS



Risk of Contamination



Manufactured PFAS (e.g., PFOA) – chemical production of raw material	Used PFOA/PFOS to manufacture a PFAS product (e.g., PTFE, Teflon) – chemical production and physical mixing	Use of a PFAS (e.g., PTFE, Teflon) as a raw material, often involving only physical mixing	Assembly involving solid PFAS products (e.g., Teflon gaskets)
Other factors – age, duration, storage, specific operations, etc. -- will move a site to the left or right on this scale			

ENVIRONMENTAL DUE DILIGENCE (CONTINUED)

- **Ubiquitous** – PFAS usage history and existing environmental sampling data indicate that PFAS is widespread:
 - PFAS detection limits are in ppt range → likely to be detected.
 - What do you do if you detect it? Most states don't have numeric limits.
 - What is the source when there are so many potential sources?
 - How do you assess risk?
- **Buyers** – want to sample for PFAS:
 - CERCLA liability is retroactive.
 - Trying to be as protected as possible given future uncertainty.
- **Sellers** – may be concerned about looking for PFAS:
 - Is PFAS risk being leveraged too aggressively in a deal?
 - Again – not the first time we have been down this road (e.g., MTBE)...

