

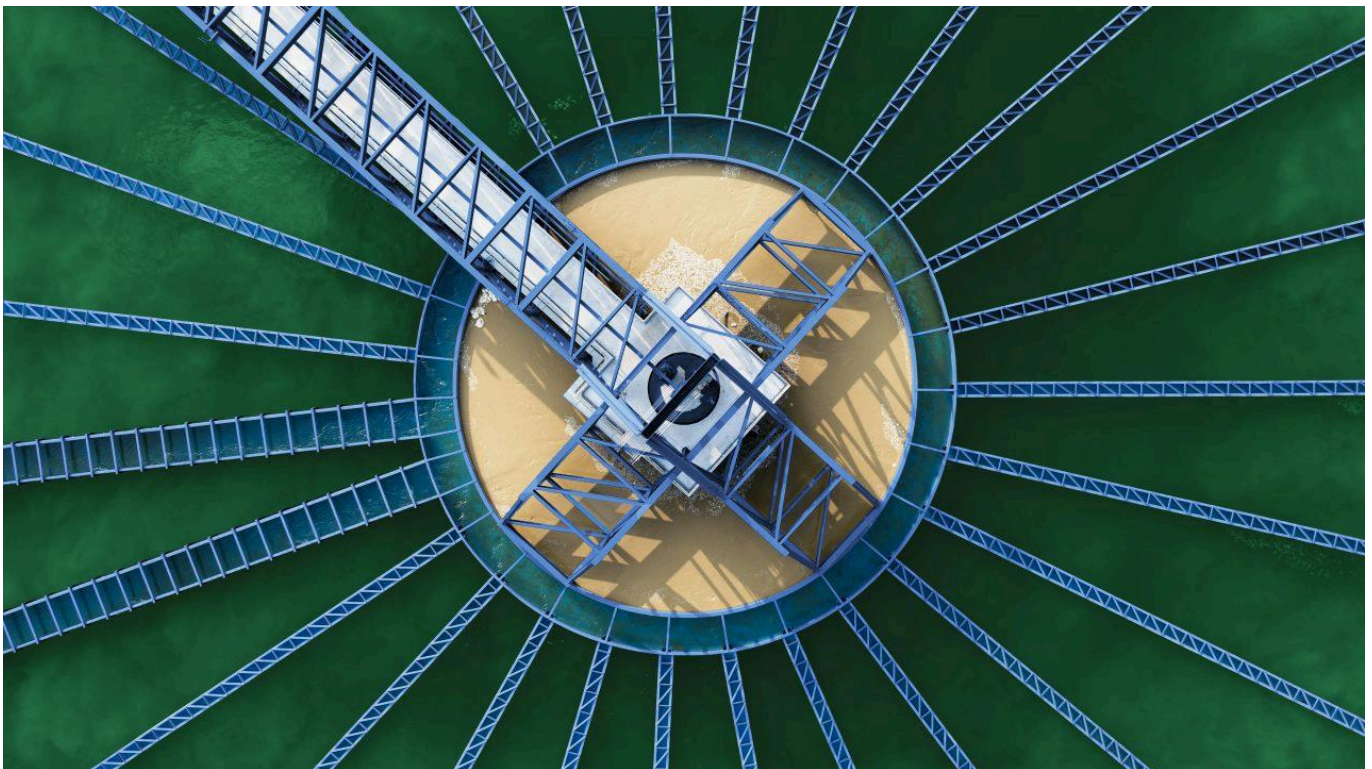
# Regulatory Review: PFAS in Biosolids–Part 3

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## Summary

- In the absence of specific federal regulations governing PFAS in biosolids, several states have taken the lead in establishing regulations and advisory levels for PFAS-containing biosolids.
- While litigation related to PFAS in biosolids has been a very small slice of PFAS-related cases, recent trends indicate that state-led cases involving biosolids will expand significantly in the near future.
- Ongoing research is addressing data gaps in the science related to PFAS in biosolids, which in turn is driving evolving regulatory actions by the states. These regulatory actions will be drivers for increased biosolids cases.



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In the final part of this three-part series, we profile state action to address per- and polyfluoroalkyl substances (PFAS) in wastewater effluent and/or biosolids. Rather than wait for delayed federal regulatory action, 10 states have established regulations or advisory levels for PFAS in biosolids. The U.S. Environmental Protection Agency (EPA or the Agency) coordinates with states under the Clean Water Act (CWA), including delegation of the NPDES program, and other federal statutes. In the absence of specific federal regulations governing PFAS in effluent and biosolids, EPA has put the burden on states, at least for now, to address this problem.

## EPA's CWA-PFAS in Upstream Dischargers and NPDES Effluent

Given the lack of CWA PFAS regulations, most industries and entities have not been required to sample, perform pretreatment, or obtain NPDES permits with conditions to manage PFAS in their facilities' effluent. As discussed in the first part of this series, this has resulted in PFAS contamination in the wastewater treatment process and the eventual incorporation of PFAS into the biosolids produced by wastewater treatment process. Ultimately the PFAS containing biosolids are land applied, incinerated, or disposed. With limited treatment options for PFAS available to public wastewater treatment plants (WWTPs), some states, with encouragement from EPA, are starting to identify and regulate upstream sources to eliminate PFAS before it enters the wastewater treatment stream and creates PFAS-contaminated biosolids.

EPA's work with states through the Environmental Council of the States (ECOS) and National Association of State Departments of Agriculture (NASDA) has resulted in "Joint Principles for Preventing and Managing PFAS in Biosolids,"<sup>1</sup> signed on July 24, 2023. Prioritizing the prevention of PFAS containing biosolids through source reduction, this document states: "[T]o prevent PFAS from entering wastewater, all relevant federal and state authorities must be deployed to address PFAS *at the source*" (emphasis added). Recently, an Agency spokesperson affirmed that "EPA recognizes that one of the best ways to address PFAS is at the source. In the water space, one way EPA will do that is by considering Effluent Limitation Guidelines (ELGs) for PFAS manufacturers and metal finishers."<sup>2</sup> ELGs guide direct discharges to surface water via National Pollutant Discharge Elimination System (NPDES) permits, as well as indirect discharges, such as pretreatment standards for industries before their wastewater is released to the municipal treatment facility.

At the outset of the Trump administration, EPA announced a halt to the Agency's previous work on PFAS ELGs for PFAS manufacturers and metal finishers, but on April 28, 2025, EPA Administrator Lee Zeldin outlined numerous upcoming actions to "combat" PFAS

contamination including moving forward with establishing ELGs for not only these two sectors but also the evaluation of other, as of yet unidentified, ELGs to reduce PFAS discharges.<sup>3</sup> In its recently released Spring 2025 Unified Agenda, EPA signaled its intent to issue final PFAS ELG's for the chemical manufacturing sector by January 2026 and a proposed rulemaking with revisions to the metal finishing effluent guidelines to address PFAS discharges by July 2026.

To aid states in their efforts to address PFAS contamination in wastewater, EPA has issued two guidance memoranda with actions state permit writers can take under existing legal authorities to reduce the discharge of PFAS in effluent.<sup>4</sup> These actions include requiring additional PFAS monitoring and pretreatment requirements in NPDES permits based on best management practices or, if possible, case-by-case technology-based effluent limits (TBELs). EPA's January 2025 guidance provides a "how-to for NPDES permit writers" with a step-by-step description for establishing industry-specific TBELs. It notes that 65 or more permits with effluent limitations have been issued already providing a model including effluent data and treatment technologies which will be beneficial information for permitting authorities seeking to add PFAS permit conditions in NPDES permits. Any such case-by-case evaluation must meet the regulatory requirements in 40 C.F.R. 125.3, which notably includes considerations of cost in achieving the effluent reduction. Where it is not possible to calculate a numeric TBEL or supplemental controls to a numeric limit are needed to carry out the CWA's purposes, EPA recommends use of Best Management Practices (BMPs) which can be very prescriptive including product elimination or substitution, accidental discharge minimization, and equipment decontamination or replacement.<sup>5</sup>

As states adopt new PFAS effluent limits, industries must recognize that this may bring increased public scrutiny, potential issues of reputational harm (warranted or not), potential enforcement and lawsuits by states, EPA, environmental NGOs, and citizens.

## 1. State Biosolids Guidance and Regulation

While states mull over how best to eliminate PFAS from sources, regulation and guidance related to PFAS in biosolids has begun to accelerate, with 10 states having either regulations or advisory levels for PFAS.<sup>6</sup> The following summary table is adapted from the ECOS Compendium of State PFAS Actions - Tables of State PFAS Regulations & Advisories - Table G – Biosolids. As shown in the table (see Table 1), the actions range from regulatory bans on PFAS-containing biosolids (e.g., Maine), to actions tied to specific concentrations of certain PFAS (e.g., Colorado and Vermont), to management requirements for biosolids based on ranges of PFOA and PFOS concentrations (e.g.,

Maryland and New York). Until EPA establishes federal regulatory standards for PFAS in biosolids, it is likely that additional states will step up and establish their own regulations and guidance to better control the management and land application/disposal of biosolids containing PFAS.

**Table 1**

## States with Biosolids Regulations &amp; Advisories (ECOS)

State	Status	Type	PFAS	Limits (µg/kg)	Grouping
Colorado	Existing	Advisory	PFOS	50	Individual
Connecticut	Existing	Regulatory	All PFAS	Ban	
Maine	Existing	Regulatory	All PFAS	Ban	
Maryland	Existing	Advisory	PFOA, PFOS	<20 - land application permissible with no additional requirements after submission of results ≥20-50 - 3 dry tons per acre or less - recommended application rate for land application of biosolids ≥50-100 - 1.5 dry tons per acre or less - recommended application rate for land application of biosolids ≥100 - land application of biosolids not recommended	Individual & Sum
Michigan	Existing	Regulatory	PFOS, PFOA	≥20 ppb - land application rate limited to 1.5 dry tons per acre, effluent sample required ≥100 ppb - land application prohibited, effluent sample required  <20 ppb - quarterly monitoring required for Class A Exceptional Quality Solids	Individual Sum
Minnesota	Existing	Regulatory	PFOA, PFOS	<19 - land application permitted ≥20-49 - land application with notifications ≥50-124 - land application with restrictions >125 ng/L - industrially-impacted, no land application	Individual & Sum
New Hampshire	Existing	Regulatory	All PFAS Analyzed in EPA Method 1633	No Limits	Individual
New Mexico	Planned		9 PFAS, their salts, & their structural isomers		
New York	Existing	Advisory	PFOA, PFOS	<20 ppb - no action required ≥20-50 - additional sampling required; DEC will take appropriate steps to	

				restrict recycling after one year if the PFOS or PFOA levels are not reduced to below 20 ppb >50 - DEC will take action to prohibit recycling until PFOS or PFOA concentration is below 20 ppb	
Vermont	Existing	Advisory	PFOS PFOA PFHpA PFNA PFHxS	3.4 1.6 0.84 0.44 0.38	Individual
Wisconsin	Existing	Advisory	PFOA, PFOS	<20 ppb - No action required >20-50 - Source investigation <50-150 - Source investigation, reduce land application to 1.5 dry tons/acre >150 - Source investigation, land application not recommended, DNR may prohibit in some cases	Individual

Adapted from the ECOS Compendium of State PFAS Actions - Tables of State PFAS Regulations & Advisories - Table G – Biosolids

## 2. Biosolids Litigation-Ramping Up Rapidly

### Two Cases to Watch

As more lawsuits are filed pertaining to regulation of or alleged harms caused by PFAS contaminated biosolids cases, the outcome of two pending cases will have significant impacts on future litigation. One will determine whether EPA has an obligation to regulate PFAS in biosolids under CWA section 405 and, the other could determine the scope of liability for producers of biosolids that are contaminated with PFAS and sold as fertilizer.

As discussed in part two of this series, in *James Farmer et al. v. EPA*,<sup>7</sup> plaintiff farmers from Texas and Maine contend that under CWA section 405, EPA must regulate PFAS in biosolids once it finds PFAS analytes during the statutorily required biennial review for “additional pollutants” in sewage sludge “if sufficient scientific evidence shows they may harm human health or the environment.”<sup>8</sup> The plaintiffs argue that EPA has identified these additional PFAS pollutants and that there is sufficient scientific evidence to require the Agency to move forward with regulations setting specific limits and requirements for the use and application of biosolids containing them under 40 CFR Part 503. EPA has countered that it does not have a non-discretionary duty to regulate these pollutants, only to conduct the biennial reviews, which it has done. EPA is seeking dismissal of the lawsuit.

Complicating EPA's legal argument in this case could be the preliminary findings in its draft Sewage Sludge Risk Assessment <sup>9</sup> for PFOA and PFOS, which recently concluded a twice-extended public comment period, while the new administration considers what action to take. The draft risk assessment focuses on land-applied or surface-disposed sewage sludge and the risks posed by PFOA and PFOS to those living on or near impacted sites. In this draft risk assessment, EPA suggests potential human health risks at the low concentration of 1 ppb or higher for people living in these locations. Although draft, EPA's analysis can only help plaintiffs argue that there is "sufficient scientific evidence" that at least PFOA and PFOS may harm human health or the environment, thus meeting the statutory test for rulemaking.

If the plaintiffs in *James Farmer* prevail, one or more PFAS will be added, after rulemaking, to the Part 503 biosolid regulation creating standards and BMPs for their future application. One can be sure that these requirements will be used by litigants even for historic use of biosolids prior to actual regulatory applicability. Additionally, states with CWA delegation authorities from EPA will be required to implement and enforce new PFAS biosolid rules giving them further impetus to ensure that both future and legacy land applications are protective of human health and the environment and spurring litigation to achieve that outcome.

The second case, also brought by Texas farmers, *Farmer v. Synagro Technologies, Inc.* <sup>10</sup> is for product liability of Synagro's biosolid fertilizer, sold as Granulite. In this lawsuit, the plaintiffs allege that Synagro "falsely markets its biosolids fertilizers as safe and organic" and claiming that the company failed to warn of a dangerous product defect caused by PFAS and was thereby negligent violating its duty of due care and causing a private nuisance. The plaintiffs seek an injunction to prevent additional harm and monetary damages, as well as a jury trial. If plaintiffs succeed in these claims, litigation against biosolids manufacturers, holding them accountable for PFAS contamination, will likely gain momentum from a wide range of parties, including more states.

## State Lawsuits to Address PFAS Contamination

While Safer States reports that more than half of U.S. state attorneys general have already taken some legal action against PFAS manufacturers and key users, <sup>11</sup> very few have focused specifically on biosolids. Instead, these cases more generally allege natural resource damage and adverse public health impacts and seek damages for past and future costs incurred by a state to investigate, remediate and provide treatment related to the PFAS contamination.

Likewise, in the federal Multi-District Litigation (MDL), ongoing in the U.S. District Court for the District of South Carolina, PFAS litigation, to date, has focused primarily on drinking water contamination, not biosolids.<sup>12</sup> This MDL currently includes over 11,000 lawsuits and tens of thousands of plaintiffs. The cases all relate to PFAS contamination, primarily in aqueous film-forming firefighting foam (AFFF), with causes of action claiming personal injury, property damage, natural resources damage, and, most prominently, public water system contamination from PFAS. But, since its establishment in 2018, the MDL has included cases related to PFAS contamination from other sources than AFFF, citing PFAS contamination in wastewater, effluent and biosolids.<sup>13</sup> These lawsuits are being brought by individuals, municipalities, utilities, and non-profit organizations. States have been slower to use this forum, and often fight transfer from state courts to it,<sup>14</sup> but that pace will likely quicken.

Although not a state action, the Portland Water District in Maine has filed suit against 18 PFAS chemical manufacturers in the U.S. District Court of South Carolina, stating in its press release that despite no measurable levels of PFAS in Greater Portland's drinking water, PFAS has been found in the effluent of its four wastewater treatment facilities at levels of 15 to 32 parts per trillion.<sup>15</sup> Similar MDL lawsuits and allegations made by state attorneys general on behalf of their citizens regarding both effluent, wastewater, and biosolids are likely.

## Specific State Biosolids Cases: A Trickle to a Tsunami

### State of Maine

Not surprisingly, after finding extensive PFAS contamination on its dairy farms and enacting a statewide ban on biosolids application,<sup>16</sup> the State of Maine filed two complaints against PFAS manufacturers in March 2023.<sup>17</sup> The litigation, which is divided between Maine AFFF defendants and Maine non-AFFF defendants, seeks recovery of all costs associated with the contamination of Maine's natural resources. The attorney general announced that manufacturers, including DuPont and 3M, among other companies, "have known for decades that PFAS pose serious risks to human health and the environment, but instead promoted their PFAS products as safe and appropriate for widespread use in Maine."<sup>18</sup> If the state prevails in obtaining a judgement or settlement for "all costs to investigate, clean up, restore, treat, monitor and otherwise respond to the contamination of Maine's natural resources," other states will surely follow its template for their own cases.

### State of Washington

The State of Washington attorney general filed actions against 20 PFAS manufacturers in King County Superior Court in 2023, alleging violations of numerous state laws, including laws pertaining to public nuisances, product liability, and consumer protection.<sup>19</sup> The litigation focuses on PFAS attributable to AFFF products, and the state specifically notes in the complaint that such contamination has been found in drinking water, groundwater, surface water, fresh water and marine sediments, *wastewater treatment plant effluent, biosolids, landfill leachate, soils*, freshwater and marine fish tissue, osprey eggs, and even breast milk<sup>20</sup> (emphasis added). As to soils, the complaint alleges that, “PFAS in the soil column serve as a continuing source of contamination for drinking water and other natural resources.”<sup>21</sup> The state is seeking costs for investigation, remediation, treatment, and restoration of all the property, soils, sediments, waters, and other natural resources contaminated with PFAS from AFFF products. Although drafted to address PFAS contamination from AFFF products primarily, the complaint is general enough to potentially allow claims for damages from biosolids contaminated with PFAS regardless of its source. The complaint could also be subsequently amended to broaden its scope.

### 3. Opportunities for Action

There is much that could be done to address the problem of PFAS in biosolids, and efforts are underway across the nation to do just that.

#### Research Gaps, Data Gaps, and Needs to Accelerate the Process

There are several data gaps in the science related to PFAS in biosolids and ongoing research. These gaps impede regulatory action by both the federal government and states. Additional actions are needed to accelerate the process of managing PFAS in biosolids and researching treatment methods and risks to human health and the environment. Critical actions and data gaps that affect states include:

- 1 Removing PFAS from POTW effluent
- 2 Identifying and eliminating WWTP influents from industry via pretreatment
- 3 Cost-effective PFAS removal options
- 4 Cost-effective disposal options
- 5 Migration, fate, transport, and partitioning of PFAS in the environment
- 6 Plant uptake



- 7 Animal uptake
- 8 Human uptake from plants, animals, and the environment
- 9 Human and ecological risks

Federal action to set a baseline for acceptable PFAS levels in biosolids is critical to addressing PFAS in biosolids. Many states are awaiting federal action before they initiate their own rulemaking. As described in part two of this series of articles on PFAS in biosolids, EPA is currently reviewing public comments on its first-ever risk assessment on two PFAS in biosolids, PFOA and PFOS. Two extensions of the comment period were given by the Trump EPA; the comment period closed on August 14, 2025. <sup>22</sup>

If EPA ultimately finalizes its biosolids risk assessment and sets at least some standards, it will make it easier for states with no regulations for PFAS in biosolids to move forward and provide much-needed assurance for WWTP operators and agricultural biosolids users.

## Conclusion

The regulation and management of PFAS in biosolids represents a critical and evolving challenge for environmental protection, public health, and agricultural sustainability. As federal and state authorities develop frameworks to address the presence of these persistent chemicals, stakeholders across wastewater treatment, agriculture, and industry must adapt to a rapidly shifting regulatory landscape. In addition to potential regulation of PFAS in biosolids under the CWA, the designation of PFOA and PFOS as hazardous substances under CERCLA and the establishment of Safe Drinking Water Act PFAS Maximum Contaminant Levels (MCLs) are also likely to impact the management of PFAS, highlighting the urgent need for innovative solutions, robust risk communication, and coordinated action among federal, state, and local entities.

Emerging technologies and research into PFAS stabilization and transformation offer promise but require further development and scalability to mitigate risks effectively. Additionally, upstream controls and enhanced monitoring will play essential roles in preventing PFAS contamination at its source. By fostering collaboration, transparency, and investment in science-driven approaches, leading stakeholders can help mitigate the environmental and public health impacts of PFAS in biosolids, ensuring that beneficial use and safe disposal options remain viable for future generations.

## Endnotes

1. EPA, July 24, 2023, Joint Principles for Preventing and Managing PFAS in Biosolids.
2. Waste Dive: May 15, 2025, “EPA’s future PFAS manufacturing effluent limitation guidelines raise new questions,” EPA Spokesperson Molly Vaseliou.
3. USEPA, News Release, “Administrator Zeldin Announces Major EPA Actions to Combat PFAS Contamination” (2025).
4. USEPA, Addressing PFAS Discharges in National Pollutant Discharge Elimination System (NPDES) Permits and Through the Pretreatment and Monitoring (Dec. 2022); USEPA. (January 2025)., Implementing Case-by-Case Technology-Based Effluent Limitations in NPDES Permits for Pollutants of Emerging Concern. (Jan. 2025).
5. 40 CFR 122.44 (k).
6. Environmental Council of the States (ECOS), April 17, 2025, Compendium of State PFAS Actions.
7. U.S. District Court for the District of Columbia, Civil Action No. 24-cv-1654, June 2024.
8. Clean Water Act section 405(d).
9. 90 FR 3859 (Jan. 15, 2025) extended in 90 FR 10078 (Feb. 21, 2025) and again at 90 FR 16128 (April 17, 2025) Docket ID No. EPA-HQ-OW-2024-0504.
10. No. C-03-CV-24-000598 (Baltimore Cty. Cir. Ct. February 27, 2024).
11. Press Statement, Safer States, updated Dec. 11, 2024, “More than half of US State Attorneys General have taken action against PFAS manufacturers and key users.”
12. U.S. District Court for the District of South Carolina, Aqueous Film-Forming Foams (AFFF) Products Liability Litigation, MDL No. 2873.
13. *Id.*
14. State of Maryland v. W.L. Gore & Associates, Inc., No. 1:24-cv-03656-RDB (D. Md.)
15. Portland Water District Press Release, “Portland Water District Joins Multidistrict Lawsuit (MDL) against PFAS Manufacturers” (June 5, 2024).
16. State of Maine MRS section 1306(7) in 2022.
17. *State of Maine v. DuPont, et al.*, Superior Court in Cumberland County.
18. Press Release, Office of the Maine Attorney General, “Attorney General Aaron M. Frey Announces Lawsuits Against PFAS Manufacturers” (March 29, 2023).

19. *State of Washington v. 3 M Company*; AGC Chemicals America's; et al., King County Superior Court No. 23-2-09821-8-SEA, Complaint for Damages.
20. *Ibid*, p. 15. Paragraph 4.24.
21. *Ibid*. p. 17. Paragraph 4.33.
22. Federal Register first published on Jan. 15, 2025 (90 FR 3859), extended on Feb. 21, 2025 (90 FR 10078) and extended again on April 17, 2025 (90 FR 12451).

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