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October 5, 2026

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Office of Water
U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
Washington, DC 20460

Tess Richman
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U.S. Environmental Protection Agency
1200 Pennsylvania Avenue NW
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submitted via regulations.gov

Re: Comments on Draft Guidance for Reducing Risk from Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS) in Biosolids; Establishment of Public Docket; Request for Feedback, Docket No, EPA-HQ-OW-2026-2509

Dear Mr. Sawyers & Ms. Richman:

The Southern Environmental Law Center and the 37 organizations listed below write to urge the U.S. Environmental Protection Agency (EPA) to revise and finalize the Draft Sewage Sludge Risk Assessment for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS)[1] (the Draft Risk Assessment) and to utilize existing authority under the Clean Water Act to control PFAS in sewage sludge instead of moving forward with this grossly inadequate guidance memorandum for "reducing risk" from PFOA and PFOS and biosolids.[2]

Alabama Rivers Alliance
Altamaha Riverkeeper
Black-Sampit Riverkeeper
Carolina Ocean Alliance
Chesapeake Legal Alliance
Clean Water Action
Conservation Voters of South Carolina
Coosa Riverkeeper
Environment Florida
Environment North Carolina
Friends of the Rappahannock
Allegheny-Blue Ridge Alliance
Black Warrior Riverkeeper
Cape Fear River Watch
Chattahoochee Riverkeeper
Choctawhatchee Riverkeeper, Inc.
Congaree Riverkeeper
Coosa River Basin Initiative
Don't Spread On Me
Environment Georgia
Food & Water Watch
Georgia Rivers

[1] U.S. EPA, Draft Sewage Sludge Risk Assessment for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS), 90 Fed. Reg. 3859 (Jan. 15, 2025); U.S. EPA, *Draft Sewage Sludge Risk Assessment for Perfluorooctanoic Acid (PFOA) CASRN 225-67-1 and Perfluorooctane Sulfonic Acid (PFOS) CASRN 1763-23-1* (Jan. 2025), https://https://perma.cc/YWE2-CJRB [hereinafter "Draft Risk Assessment"].
[2] Draft Guidance Memorandum from Jessica L. Kramer, Assistant Administrator for Water, U.S. EPA (Jun. 29, 2026) [hereinafter "Draft Guidance"].

Georgia WAND
North Carolina Conservation Network
Ogeechee Riverkeeper
Science for Georgia, Inc
South Carolina Environmental Law Project
Southeast Tennessee Young Farmers Coalition
Waterkeepers Chesapeake
James River Association
North Carolina Stop GenX in Our Water
Rockbridge Conservation
Sierra Club
South Carolina Wildlife Federation
Sustainable Sandhills
The Piedmont Environmental Council
Winyah Rivers Alliance

The land application of PFAS-contaminated sewage sludge continues to contaminate farmland and threaten farming families and rural communities. EPA's recent criticisms of the Draft Risk Assessment do not undermine the core findings regarding these risks. But by abandoning the Draft Risk Assessment in favor of purely voluntary guidance, EPA's draft memorandum moves in the wrong direction. If EPA truly believes the assessment requires revision, the proper course is to revise and finalize it—not retreat from it.

Communities cannot be protected from toxic chemical contamination through voluntary guidance alone, especially where the recommendations are vague, discretionary, and impracticable. EPA must finalize its scientific review and risk assessment for PFOA and PFOS in sewage sludge in order to protect families, farmers, ranchers, and rural communities and provide the scientific foundation needed to support meaningful regulatory action.

As EPA finalizes the risk assessment, EPA must use its existing Clean Water Act authorities to protect communities from ongoing PFAS pollution. This includes fully utilizing the industrial pretreatment program to prevent PFAS discharges from entering wastewater treatment systems and contaminating sewage sludge in the first place. Additionally, EPA should use its authority under section 405 of the Clean Water Act to develop enforceable standards and management practices that adequately protect against the risks posed by PFAS-contaminated sewage sludge. Only by pairing a finalized risk assessment with enforceable Clean Water Act protections can EPA prevent further contamination of farmland, food systems, and drinking water resources.

I. The widespread land application of PFAS-contaminated sewage sludge threatens farming families and communities across the country.

As EPA notes, sewage sludge has been used as a land amendment for decades. At least 60 percent of all sewage sludge is land-applied, but EPA contends that sewage sludge is applied to less than 1 percent of the nation's farmland annually in this draft guidance.[3] This misleading figure is based on reports from only a subset of facilities in the 41 states, the District of Columbia, and the Tribes and territories where EPA retains the relevant permitting authority (it does not include data from states authorized to implement their own permitting program, or data from smaller facilities[4]) and is likely a significant underestimate. Industry surveys, on the other hand, indicate that nearly 70

[3] Draft Guidance, *supra* note 2, at 2.
[4] U.S. EPA, *Basic Information about Sewage Sludge and Biosolids*, https://perma.cc/VP3T-Y3Z5 (last updated Sept. 17, 2026).

million acres of farmland—about 18 percent of all agricultural lands—use sewage sludge as fertilizer,[5] clearly demonstrating that the use of sewage sludge as a land amendment is widespread. With widespread use comes the potential for widespread impacts.

Unfortunately, studies have also confirmed that PFAS are frequently found in sewage sludge,[6] with their presence being both widespread and persistent,[7] and that sewage sludge generated from industrial wastewater discharges is far more polluted.[8] And PFAS chemicals do not stay put once PFAS-contaminated sewage sludge is applied to the land. PFAS from sewage sludge has been shown to contaminate soils and nearby water sources,[9] and the chemicals can be taken up by plants and animals and introduced into the food chain.[10]

As EPA determined the Draft Risk Assessment, families who live on land where PFAS-contaminated sewage sludge has been sprayed are most threatened because they are the people who rely most heavily on the lands where it has been applied.[11] High-risk pathways of exposure for these families include "drinking milk from majority pasture-raised cows consuming contaminated forage, soil, and water," drinking water "from contaminated surface or groundwater on or adjacent to [an] impacted property," eating fish from waters "impacted by runoff from [an] impacted property," and "eating beef or eggs from majority pasture-raised hens or cattle where the pasture has received impacted sewage sludge."[12] These and other pathways of exposure—*i.e.*, PFAS contamination in food supplies from PFAS-contaminated sewage sludge—also threaten wider food safety and human health. Numerous studies have demonstrated that crops and animal products can be contaminated by PFAS through the application of contaminated sewage sludge as fertilizer.[13]

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[5] Jared Hayes, *EWG: 'Forever Chemicals' May Taint Nearly 70 Million Cropland Acres*, Env't. Working Group (Jan. 14, 2025), https://perma.cc/H7P9-G32A; Nat'l Biosolids Data Project, *U.S. Biosolids*, https://perma.cc/S7AC-NA2K (last visited Sept. 21, 2026).

[6] Draft Risk Assessment, *supra* note 1 at, 11–12 (citing studies from 2009 to 2024).

[7] Luoana Florentina Pascu et al., *Managing PFAS in Sewage Sludge: Exposure Pathways, Impacts, and Treatment Innovations*, 15 J. Xenobiotic 135 (2025), https://doi.org/10.3390/jox15040135.

[8] Interstate Tech. Regulat. Council, *Biosolids and Per- and Polyfluoroalkyl Substances (PFAS)* Sept. 2023), https://perma.cc/PL93-UYH7; *see also*, Juhi Liu and Joseph A Charbonnet, *A Critical Review of PFAS Analysis, Occurrence, and Fate in Wastewater Treatment Plants*, 59 Env't. Sci. & Tech. 25492, 25500 (Nov. 27, 2025), https://doi.org/10.1021/acs.est.5c09949.

[9] Diana Oviedo-Vargas et al., *Quantification of PFAS in Soils Treated with Biosolids in Ten Northeastern US Farms*, 15 Scientific Reports 5582 (2025), https://doi.org/10.1038/s41598-025-90184-z.

[10] Andrea C. Blaine et al., *Uptake of Perfluoroalkyl Acids into Edible Crops via Land Applied Biosolids: Field and Greenhouse Studies*, 47 Env't Sci. Tech. 14062–69 (2013), https://doi.org/10.1021/es403094q; Bei Wen et al., *Field Study on the Uptake and Translocation of Perfluoroalkyl Acids (PFAAs) by Wheat (Triticum aestivum L.) Grown in Biosolids-Amended Soils*, 184 Env't Pollution, 547–54 (2014), http://dx.doi.org/10.1016/j.envpol.2013.09.040; Summer Streets et al., *Per- and Polyfluoroalkyl Substances in Land-Applied Biosolids: Accumulation in Soils, Crop Uptake, and Potential Dietary Risk*, 55 J. Env't Quality, 70220 (2026), https://doi.org/10.1002/jeq2.70220.

[11] Draft Risk Assessment, *supra* note 1, at 5.

[12] *Id.* at vi.

[13] See *supra* note 10.

PFAS from contaminated sewage sludge can also pollute downstream and downgradient surface water[14] and groundwater,[15] including drinking water supplies. The land application of PFAS-contaminated sewage sludge in northwest Georgia, for example, has polluted the drinking water supplies of multiple cities in Georgia and Alabama.[16] In another part of the state, private wells near the sewage sludge fields of a local utility have been contaminated with PFAS, some with concentrations of the chemicals over 15 times the drinking water standards.[17]

These risks threaten farming families and other communities across the country, and they cannot be addressed by voluntary guidance.

II. EPA must revise and finalize the Risk Assessment rather than pivoting to weak, voluntary guidance.

With this draft guidance, EPA appears to be retreating from finalizing the Risk Assessment because the agency believes it has "caused confusion among the public and the regulated community" and created "a misconception … that *all* biosolids and sewage sludge use and disposal practices will negatively affect the public."[18] EPA seems to suggest that this is in part because the Draft Risk Assessment assessed only "hypothetical" higher-risk scenarios of PFAS in land-applied sewage sludge.[19]

But EPA has it backwards. The available evidence suggests that the Draft Risk Assessment understates, rather than overstates, the risks associated with PFAS-contaminated sewage sludge. Real-world experience in farming communities across the country has revealed widespread contamination of soil, crops, livestock, and drinking water linked to land-applied sewage sludge, indicating that actual risks may be greater than those captured in EPA's analysis. EPA should revise and finalize the Draft Risk Assessment to address the major shortcomings in its analysis (see attached).

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[14] Interstate Tech. Regulat. Council, *supra* note 8; Rockefeller Inst. of Gov't, *An Overview of PFAS in Biosolids: Part III* (Feb. 25, 2025), https://perma.cc/59Q4-JQCS; Lynda Godwin Peter & Linda S. Lee, *Sources and Pathways of PFAS Occurrence in Water Sources: Relative Contribution of Land-Applied Biosolids in an Agricultural Dominated Watershed*, 59 Env't Sci. Tech, 1344–53 (2025), https://doi.org/10.1021/acs.est.4c09490.

[15] *See* Peter B. McMahon, et al., *Perfluoroalkyl and Polyfluoroalkyl Substances in Groundwater Used as a Source of Drinking Water in the Eastern United States*, 56 Env't Sci. Tech. 2278, 2285 (2022), https://doi.org/10.1021/acs.est.4c09490.

[16] *See* Ga. Env't Prot. Div., *NPDES Permit No. GA0025607 Trion WPCP* (2019), https://perma.cc/WFV3-75BR; Town of Trion, *NPDES FORM 2A Application Overview* at 18 (2018), https://perma.cc/55N5-3R6M; *Ga. Env't Prot. Div., Consent Order EPD-WP-8894* at 1 (Apr. 13, 2020), https://perma.cc/XU6T-LVHC; *see* Nathan Barlet, LSASD Project ID: 19-0253, *Final Report: Phase 2: Prioritization of PFAS Contributions to Weiss Lake* at 17, 26 (tbl. 9) (Sept. 10, 2019), https://perma.cc/8U2D-BVAV; *see* Drew Kann, *Rome is Grappling with Toxic 'Forever Chemicals' Fouling Waterways*, The Atlanta J.-Constitution (Oct. 14, 2022), https://www.ajc.com/news/rome-is-grappling-with-toxic-forever-chemicals-fouling-waterways/PQ3OZY6W4ZHVJJKENNQEAUGHZ4/; S. Env't Law Ctr., *Notice of Intent to Sue the City of Burlington for Violations of the Clean Water Act and the Resource Conservation and Recovery Act* at 15–19 (Nov. 7, 2019), https://perma.cc/QR5F-8PXV.

[17] *See, e.g.*, EPA, *Perfluorochemical (PFC) Contamination of Biosolids Near Decatur, Alabama* at 3 (Dec. 2009), https://perma.cc/5HGH-LTK9 (document reporting concentrations in ppb).

[18] Draft Guidance, *supra* note 2, at 3–4.

[19] *Id.* at 4.

First, EPA itself has found that available data shows that "nearly all biosolids samples have higher concentrations" of PFAS than 1 part per billion (ppb), the level the agency used as the starting concentration for modeling in the Draft Risk Assessment.[20] Studies of PFAS in sewage sludge from wastewater plants consistently show levels of PFAS that are dozens of times, if not hundreds of times, higher than the level assessed in the Draft Risk Assessment. A study conducted on sewage sludge from nearly one hundred wastewater plants throughout the country (archived from an earlier EPA National Sewage Sludge Survey) found that average concentrations as high as 403 ppb for PFOS and 34 ppb for PFOA.[21] In some cases, sewage sludge has been found to have concentrations of PFOS (only one type of PFAS) as high as 8,600,000 parts per trillion (ppt)[22]—an astounding 8,600 times higher than the level EPA considered in its risk calculation. This means the actual risks of PFAS-contaminated sewage sludge could be significantly higher than what is represented in the Draft Risk Assessment.

Second, the agency limited the Draft Risk Assessment to only two PFAS compounds—PFOA and PFOS—out of a class of nearly 15,000 compounds, and it only evaluated the risks of these chemicals *individually* rather than in combination. Studies have consistently shown that numerous types of PFAS are present in sewage sludge,[23] including PFOA and PFOS precursors,[24] and that other, short-chain PFAS harm human health in similar ways to PFOA and PFOS.[25] Moreover, people are typically "exposed to a mixture of several PFAS that may have synergistic effects," and current research suggests that toxicological effects of PFAS exposure may be "more related total PFAS levels, rather than individual PFAS compounds."[26] By only evaluating two types of PFAS—and only in isolation—EPA likely significantly underestimated the risk of PFAS in sewage sludge in the Draft Risk Assessment.

Finally, EPA also only considered one exposure pathway at a time in the Draft Risk Assessment, meaning it did not adequately assess the risks of PFAS in sewage sludge in the context of the variety of ways people are exposed to PFAS in their everyday lives. The agency also assumed that people will only be exposed to PFAS from sewage sludge for ten years and that "60 of their 70 years of life [were] assumed to have zero PFOA and PFOS exposure from any source."[27] EPA itself has admitted that this is an extremely unrealistic

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[20] Draft Risk Assessment, *supra* note 1, at 49, 113.
[21] *See* Arjun K. Venkatesan et al., *National Inventory of Perfluoroalkyl Substances in Archived U.S. Biosolids from the 2001 EPA National Sewage Sludge Survey*, 252 J. of Hazardous Materials 413–18 (2014), https://doi.org/10.1016/j.jhazmat.2013.03.016.
[22] Dorin Bogdan, *Evaluation of PFAS in Influent, Effluent, and Residuals of Wastewater Treatment Plants (WWTPs) in Michigan* 13 (Apr. 2021), https://perma.cc/UC2J-KTKR (reported in µg/Kg, translated to ppt).
[23] Luoana Florentia Pascu et al., *supra* note 7; Ting Zhou et. al, *Occurrence, Fate, and Remediation for Per- and Polyfluoroalkyl Substances (PFAS) in Sewage Sludge: A Comprehensive Review*, J. of Hazardous Materials at 6 (2024), https://doi.org/10.1016/j.jhazmat.2024.133637.
[24] Draft Risk Assessment, *supra* note 1, at 9, 113.
[25] *See, e.g.*, Megan Solan et al., *Short-Chain Per- and Polyfluoralkyl Substances (PFAS) Effects on Oxidative Stress Biomarkers in Human Liver, Kidney, Muscle, and Microglia Cell Lines*, 223 Env't Rsch. 115424 (2023), https://doi.org/10.1016/j.envres.2023.115424.
[26] Jesse A. Goodrich et al., *Metabolic Signatures of Youth Exposure to Mixtures of Per- and Polyfluoroalkyl Substances*, 131 Env't Health Perspectives 027005-1, 027005-8 to -9 (Feb. 23, 2023), https://doi.org/10.1289/ehp11372.
[27] Draft Risk Assessment, *supra* note 1, at 113.

modeling scenario,[28] and people are often exposed to PFAS via multiple pathways over the course of their lifetimes. This is especially true for farmers and ranchers, who may be exposed to more than one type of PFAS exposure pathway from food from their land, drinking water from on-site wells, and consumer products.

Despite the limitations of the Draft Risk Assessment, EPA still concluded that exposure to sewage sludge "exceed[s] the agency's acceptable human health risk thresholds" in the scenarios it examined.[29] Instead of pivoting to ineffective voluntary guidance (discussed below), EPA should respond by revising and strengthening the Risk Assessment to better reflect real-world conditions. Finalizing the Risk Assessment is an important step toward protecting public health and the environment, and it will provide the foundation for EPA and states to develop needed safeguards and to take action to prevent further contamination from PFAS-contaminated sewage sludge.

III. EPA's proposed voluntary measures fail to address the serious risks posed by PFAS-contaminated sewage sludge and will not prevent further contamination.

The Draft Risk Assessment demonstrates that land application of PFAS-contaminated sludge poses serious and unacceptable risks to human health and the environment. Rather than responding with meaningful safeguards, EPA's draft guidance relies on voluntary measures directed at land appliers, sewage sludge generators, and the public. These recommendations are unenforceable, largely unworkable, and will not protect communities.

A. The recommendations require information that many landowners, home gardeners, and land appliers do not have and often cannot obtain.

In the draft guidance, EPA suggests researching sewage sludge suppliers and avoiding application in areas with elevated environmental risks, yet the agency provides no practical mechanism for making these determinations. For example, the guidance suggests that the land application of sewage sludge be avoided "near" waters that are "used as a source of drinking water," waters that are "fishable," or places that have "higher risks for potential groundwater impacts,"[30] but provides no information about what "near" means, which waters qualify as a "source of drinking water" or "fishable," or how to identify a site with elevated groundwater risk. The guidance also suggests that sewage sludge not be applied "in areas where children under the age of 5 have access *or may have access in the future*"[31]—something that no landowner or party could ever reasonably attest.

For home gardeners and consumers, EPA recommends "researching the supplier of the sewage sludge" in bagged and bulk soil products sold at garden centers and hardware stores.[32] This, however, is an almost impossible task because such products need not even disclose that they contain sewage sludge, much less identify the

[28] *Id.* at iv.
[29] *Id.* at v.
[30] Draft Guidance, *supra* note 2, at 7.
[31] *Id.* at 7.
[32] *Id.* at 8.

wastewater plant that generated the sewage sludge or whether is PFOA and PFOS.[33] The guidance also includes no information about how consumers can research and understand the use (and risks) of PFAS-contaminated sewage sludge in the production of their purchased food.

Taken together, these recommendations place an unreasonable burden on recipients of contaminated sewage sludge. Rather than preventing pollution, EPA's approach asks individual landowners, farmers, gardeners, schools, parks, and community organizations to identify and manage complex contamination risks—even when that information is impossible to obtain, and as EPA is proposing to delay or rollback reporting requirements for industry.[34]

B. The recommendations rely entirely on voluntary action by parties with little incentive or ability to address the problem.

Land appliers and sludge management companies profit from continued land application, while landowners and community groups generally lack the technical expertise needed to evaluate PFAS risks. EPA provides no mechanism to ensure implementation of the guidance, evaluate its effectiveness, or prevent ongoing contamination.

History has shown that voluntary measures alone do not adequately protect communities from toxic chemical contamination. For instance, an analysis of the efficacy of voluntary environmental programs (VEPs)—programs, agreements, and commitments that encourage participating entities to reduce environmental impacts—found "that there is little evidence that *overall* VEP participation is associated with improved environmental performance," and only "modest environmental performance improvements" were found for participants in VEPs monitored by third parties.[35] And this is despite the fact that VEPs have more structural components to inspire participation and results—like established targets or statements of environmental goals, and access to technical assistance—than the draft guidance at issue here.[36] These findings are consistent with other research showing that voluntary approaches have not significantly reduced pollution,[37] including in the context of agricultural nonpoint source pollution.[38] Instead, lasting protection depends on enforceable requirements that reduce pollution and hold responsible parties accountable.

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[33] *See generally* Sierra Club & Ecology Ctr., *Sludge in the Garden: Toxic PFAS in Home Fertilizers Made from Sewage Sludge* (May 25, 2021), https://perma.cc/9PTG-G64V; *see also* 40 C.F.R. § 503.14(e) (requiring a label or information sheet for sewage sludge sold or given away, without requiring disclosure of PFAS concentrations).

[34] *See e.g.*, Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Data Reporting and Recordkeeping Under the Toxic Substances Control Act (TSCA); Revision to Regulation, 90 Fed. Reg 50923 (Nov. 13, 2025).

[35] Nicole Darnall & Stephen Sides, *Assessing the Performance of Voluntary Environmental Programs: Does Certification Matter?*, 36 Pol'y Stud. J. 95, 96–97, 101, 110 (2008), https://perma.cc/4MPM-74SV.

[36] *Id.* at 98–99.

[37] *See e.g.*, Shanti Gamper-Rabindran & Stephen R. Finger, *Does Industry Self-Regulation Reduce Pollution? Responsible Care in the Chemical Industry* 29–30 (Dec. 17, 2011), https://perma.cc/ZB56-YREW.

[38] Marc Ribaudo, *The Limits of Voluntary Conservation Programs*, Choices (2015), https://perma.cc/83NB-ZRLD.

Voluntary measures are also especially inappropriate for entities like Synagro, a company that manages millions of tons of sewage sludge each year[39] and is actively lobbying Congress "to limit the ability of farmers and others to sue to clean up fields polluted by the fertilizer."[40] Companies that continue to profit from widespread land application of sewage sludge while lobbying to shield that practice from any liability cannot be relied upon to voluntarily reduce pollution, assume additional costs, or restrict their own operations; they are interested in protecting their bottom line.[41] EPA should not assume that companies with a direct financial stake in maintaining the status quo will police themselves.

IV. EPA should use its Clean Water Act authority to hold polluters accountable and protect communities from PFAS-contaminated sewage sludge.

Most importantly, the recommendations do not address the source of the problem. Instead of publishing voluntary, ineffective, and infeasible guidance, EPA should focus on revising and finalizing the Draft Risk Assessment and using existing Clean Water Act authority to prevent PFAS from reaching sewage sludge in the first place. These actions will properly place the burden of treating this pollution on the industries that use PFAS chemicals (and therefore profit from them). EPA should also establish clear, enforceable standards and practices for land-applied sewage sludge that is contaminated by PFAS to ensure they are protective of human health and the environment.

A. Industrial Pretreatment

EPA's voluntary guidance does not effectively address a primary source of PFAS contamination in sewage sludge: PFAS pollution from industrial discharges flowing into wastewater plants. EPA recognizes the importance of PFAS pollution prevention practices in the draft guidance document, but the agency ultimately only suggests that wastewater plants "consider" monitoring for the chemicals.[42] Monitoring is not enough; it does nothing to stop PFAS from entering wastewater systems, contaminating sewage sludge, or exposing downstream communities to harm. EPA's approach amounts to watching the problem worsen rather than taking action to stop it.

Controlling industrial sources of PFAS to wastewater plants is necessary to prevent the chemicals from ending up in the wastewater plants' effluent and building up in sewage sludge. Rather than implementing this commonsense approach, EPA has instead decided to withdraw important guidance that spells out the concrete steps wastewater plants can take to identify PFAS pollution from industrial users and start to address industrial sources.[43] Without addressing the source of PFAS pollution in the first place,

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[39] Press Release, Synagro Techs., Inc., *Synagro Launches Inaugural Sustainability Report, Outlining Strategy for Sustainable Growth* (Sept. 11, 2023), https://perma.cc/4TLY-9FWJ.
[40] Hiroko Tabuchi, Their Fertilizer Poisons Farmland. Now, They Want Protection from Lawsuits, The New York Times (Dec. 6, 2024), https://bit.ly/3VfHXv1.
[41] Draft Guidance, *supra* note 2, at 7.
[42] *Id.* at 8.
[43] Initial Review of EPA Office of Water Guidance Documents Memorandum from Jessica L. Kramer, to Office of Water Program Directors (Aug. 11, 2026) [hereinafter "Initial Review of EPA Office of Water Guidance Documents Memorandum"].

farmers and communities will be fighting a losing battle to "reduce risks" of this pollution in land-applied sewage sludge.

i. PFAS from industrial waste, as opposed to domestic waste, is responsible for high levels of PFAS in wastewater plant discharges.

Studies demonstrate that wastewater plants receiving industrial waste have far higher levels of PFAS than those that only receive domestic waste.[44] At a global scale, researchers have compared PFAS levels across wastewater plants and found that "[w]astewater with elevated industrial and landfill leachate contributions tends to have higher total PFAS concentrations compared to domestic wastewater streams."[45] The same is true in the United States. For example, North Carolina's Department of Environmental Quality conducted a study of PFAS and other chemicals in sewage sludge and concluded that wastewater plants receiving domestic-only waste "had consistently lower PFAS" entering and exiting the plants than wastewater plants receiving industrial waste.[46] Domestic-only plants had total PFAS influent levels reaching 112 ppt, whereas influent from industrially impacted plants reached as high as 4,124 ppt—nearly 37 times the concentration of PFAS found in of domestic-only plants.[47]

Another study by Duke University affirms that industrial waste is a significant contributor to PFAS levels in discharges from wastewater plants. This study—part of a settlement agreement that the city of Burlington, North Carolina entered into after confronted with a lawsuit alleging Clean Water Act violations—analyzed PFAS levels flowing into the city's wastewater plant from several industries.[48] The PFAS coming from this wastewater plant was significant, with concentrations as high as 33,000 ppt,[49] and these discharges and the plant's land-applied sewage sludge were polluting downstream

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[44] *See, e.g.*, Sara Castiglioni et al., *Sources and Fate of Perfluorinated Compounds in the Aqueous Environment and in Drinking Water of a Highly Urbanized and Industrialized Area in Italy*, 282 J. of Hazardous Materials 51–60 (2015), https://doi.org/10.1016/j.jhazmat.2014.06.007; Swadhina Priyadarshini Lenka et al., *A Review of the Occurrence, Transformation, and Removal of Poly- and Perfluoroalkyl Substances (PFAS) in Wastewater Treatment Plants*, 199 Water Rech. 117187 (2021), https://doi.org/10.1016/j.watres.2021.117187; James O'Connor et al., *Distribution, Transformation, and Remediation of Poly- and Per-fluoroalkyl Substances (PFAS) in Wastewater Sources*, 164 Process Safety and Env't Prot. 91–108 (2022), https://doi.org/10.1016/j.psep.2022.06.002; Felicia Fredriksson et al., *Per- and Polyfluoroalkyl Substances (PFAS) in Sludge From Wastewater Treatment Plants in Sweden — First Findings of Novel Fluorinated Copolymers in Europe Including Temporal Analysis*, 846 Sci. Total Env't 157406 (2022), https://doi.org/10.1016/j.scitotenv.2022.157406; Benedetta Giannelli Moneta, *Occurrence of Per- and Polyfluorinated Alkyl Substances in Wastewater Treatment Plants in Northern Italy*, 894 Sci. Total Env't 165089 (2023), https://doi.org/10.1016/j.scitotenv.2023.165089.

[45] Juhi Liu & Joseph A Charbonnet, *A Critical Review of PFAS Analysis, Occurrence, and Fate in Wastewater Treatment Plants*, 59 Env't. Sci. & Tech. 25492, 25500 (Nov. 27, 2025), https://doi.org/10.1021/acs.est.5c09949.

[46] N.C. DEQ, *Biosolids Study: EMC Summary* (Nov. 13, 2025), at slides 6–7, https://perma.cc/T8J5-WENW.

[47] *Id.* at slide 6.

[48] Patrick W. Faught et al., *Colloidal Side-Chain Fluorinated Polymer Nanoparticles Are a Significant Source of Polyfluoroalkyl Substance Contamination in Textile Wastewater*, Env't Sci. Tech. Lett. (Nov. 18, 2025), https://doi.org/10.1021/acs.estlett.5c01014 [hereinafter Duke, Burlington Study]; Memorandum of Agreement Between City of Burlington, North Carolina and Haw River Assembly (Oct. 22, 2020), https://perma.cc/Y3AQ-3S94; Settlement Agreement Between City of Burlington, North Carolina and Haw River Assembly (Aug. 1, 2023), at 2–3 https://perma.cc/Z9X7-XCUU.

[49] Duke, Burlington Study, *supra* note 48, at C.

drinking water in Pittsboro (850 ppt)[50] and Chapel Hill (2,000 ppt).[51] Using a broad analytical method, Duke was able to pinpoint the source of PFAS: an industrial textile facility releasing PFAS at levels reaching 1,370,000 ppt.[52] Ultimately, after looking at all sources flowing into the wastewater plant, researchers confirmed that industrial sources of PFAS "far outweigh[] domestic contributions" to the plant.[53]

The same has been found in Michigan, where the Department of Environment, Great Lakes, and Energy has undertaken numerous studies related to its industrial pretreatment program and PFAS pollution. Wastewater plants without industrial pretreatment programs (meaning the wastewater plant does not receive industrial wastewater) reported PFOA and PFOS concentrations between 10 and 20 ppt, whereas wastewater plants with industrial pretreatment programs detected concentrations in their effluent as high as 660 ppt for PFOA, and 4,800 ppt for PFOS.[54] Based on data generated by years of studies, the Department concluded "that general consumer use of products with PFAS coatings and/or ingredients (residential laundering, cleaning carpets, etc.) is generally considered a lower risk based on flow, concentrations, and other factors compared to significant industrial discharges" of PFOS entering wastewater plants.[55]

ii. The industrial pretreatment program is a commonsense way to stop PFAS pollution from entering wastewater plants and reduce PFAS in sewage sludge.

Because industrial wastewater is a significant contributor of PFAS to wastewater plants, the Clean Water Act's industrial pretreatment program is an efficient, cost-effective, and commonsense way to stop this pollution from entering wastewater plants in the first place. It properly places treatment costs on the companies using PFAS chemicals, and in turn will reduce the amount of PFAS that ends up in sewage sludge—and ultimately the amount of PFAS that is land-applied across the country.

Under the Clean Water Act's industrial pretreatment program, wastewater plants are required to know what waste they receive[56]—including pollutants that are not conventional or listed as toxic, like PFAS[57]—in order to ensure their industrial customers' discharge does not cause "Pass Through" (when the industrial discharge would cause the wastewater plant to violate its own discharge permit)[58] or "Interference" (when the industrial discharge would disrupt the wastewater plant's operation or sewage sludge use

[50] *Id.*
[51] *Id.* at D.
[52] *Id.*
[53] *Id.* at A.
[54] Bogdan, *supra* note 22, at 64.
[55] Mich. Dep't of Env't, Great Lakes, and Energy, *Michigan Industrial Pretreatment Program (IPP) PFAS Initiative: Identified Industrial Sources of PFOS to Municipal Wastewater Treatment Plants*, at 5 (Aug. 2020, revised and updated May 2025), https://perma.cc/7YVJ-K9FA.
[56] 40 C.F.R. § 403.8(f)(2).
[57] *See* U.S. EPA, *PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024*, at 14 (Oct. 2021), https://perma.cc/LK4U-RLBH.
[58] 40 C.F.R. § 403.3(p).

or disposal),[59] or otherwise violate pretreatment laws.[60] To prevent Pass Through and Interference, wastewater plants have broad authority to: (1) "deny or condition" pollution permits for industries, (2) control industrial pollution "through Permit, order or similar means," and (3) "require" "the installation of technologies."[61] Municipalities can also implement local limits to further control any industrial pollution received.[62] Put simply, wastewater plants can and must tell industries to stop PFAS pollution before it contaminates wastewater or sewage sludge.

The industrial pretreatment program is how the Clean Water Act "assures the public that [industrial] dischargers cannot contravene the [Clean Water Act's] objectives of eliminating or at least minimizing discharges of toxic and other pollutants simply by discharging indirectly through [wastewater plants] rather than directly to receiving waters."[63] This authority can and should be used to control industrial sources of PFAS into wastewater plants, and to significantly reduce the amount of PFAS in sewage sludge.

Effective pretreatment works. In Michigan, wastewater plants are required to sample their industries' wastewater, implement PFOA and PFOS reductions at confirmed sources, and, if necessary, develop technology-based local limits to ensure control of PFAS pollution.[64] In cases where PFAS reductions were required, PFOS concentrations were reduced *by over 90 percent*.[65] For most wastewater plants, reductions ranged between 96 and 99 percent.[66] After seven years of implementation, Michigan has confirmed that "there is significant evidence to support that utilizing the establishing authorities under the [industrial pretreatment program] to identify and control industrial and non-domestic sources of PFAS (specifically PFOS) to [wastewater] plants is highly effective at reducing the discharge of this pollutant into the environment."[67]

After these measures were implemented, concentrations of PFAS in sewage sludge also began to decline.[68] Recognizing the effectiveness of the industrial pretreatment program in addressing PFAS contamination, Michigan's sewage sludge management program now requires wastewater plants to sample their sewage sludge and investigate any industrial sources and develop a source reduction program if PFOS and PFOA levels are detected above a certain threshold.[69] Michigan's effective use of the industrial

[59] *Id.* § 403.3(k).
[60] *Id.* §§ 403.8(a), 403.5(a)(1).
[61] *Id.* § 403.8(f)(1).
[62] *Id.* § 403.5.
[63] General Pretreatment Regulations for Existing and New Sources, 52 Fed. Reg. 1586, 1590 (Jan. 14, 1987) (codified at 40 C.F.R. § 403).
[64] Bogdan, *supra* note 22, at 5.
[65] *Id.* at 14 (tbl. 9).
[66] *Id.*
[67] Mich. Dep't of Env't, Great Lakes, and Energy, *supra* note 55, at 27.
[68] Bogdan, *supra* note 22, at 13.
[69] Letter from Teresa Seidel, Water Res. Div., Mich. Dep't of Env't, Great Lakes, and Energy, to Permittee (Apr. 5, 2021), https://perma.cc/QEV7-9PXQ; Letter from Phil Argiroff, Water Res. Div., Mich. Dep't of Env't, Great Lakes, and Energy, to Permittee (Dec. 27, 2023), https://perma.cc/LA93-2ZE5.

pretreatment program has successfully reduced PFAS levels in sewage sludge *by more than 90 percent*.[70]

Similar use of the industrial pretreatment program has reduced PFAS pollution in central North Carolina. As described above, the city of Burlington operates a wastewater plant that receives discharges from multiple industrial sources of PFAS,[71] and its sewage sludge has been found to be highly contaminated by PFAS (with concentrations as high as almost 12,000 ppt).[72] After a lawsuit lead the city to utilize its industrial pretreatment authority to control PFAS pollution from these sources, the concentrations of PFAS in Burlington's wastewater have decreased *by more than 90 percent*.[73] In addition, the PFAS concentrations in Burlington's sewage sludge have decreased[74] and are expected to further decline as industries complete steps to treat and stop their flow of PFAS into the wastewater plant.

iii. EPA must enforce the use of the industrial pretreatment program for PFAS.

These case studies demonstrate that effective use of the industrial pretreatment program can significantly reduce toxic PFAS in sewage sludge. EPA, however, recently withdrew existing guidance that clearly explains how wastewater plants can use this program to identify and control sources of PFAS entering their systems to stop this pollution and put treatment costs on the companies using (and profiting) from these chemicals.[75] There is, however, no valid reason to withdraw this guidance. The Clean Water Act provisions underlying the guidance remain unchanged, and the withdrawal does not alter EPA's or wastewater utilities' existing authority to address PFAS contamination at its source.

While it falls on municipal wastewater plants to carry out the industrial pretreatment program, it is up to EPA and states with delegated authority to ensure wastewater plants are doing so.[76] Instead of relying on inadequate, voluntary guidance to "reduce risks" related to PFAS in sewage sludge, we urge the agency to (1) reinstate the guidance about how to use the industrial pretreatment program to address PFAS pollution, and (2) to enforce the program as a first step towards reducing this ongoing PFAS contamination.

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[70] Jennifer Bush, *Michigan's Management of PFAS in Wastewater Treatment Plants and Associated Biosolids*, at slide 15 (Jan. 19, 2023), https://perma.cc/KHK3-8FHB.

[71] Env't Analytical Chem. Lab., *PFAS Analytical Data from Sampling of the City of Burlington's Wastewater plant Influent and Effluent and Elevate Textiles' Wastewater Discharges*, Duke Univ., https://perma.cc/46YY-A7GG. The Environmental Analytical Chemistry Laboratory at Duke University—on behalf of Haw River Assembly and the Southern Environmental Law Center—conducted Targeted and Total Oxidizable Precursor (TOP) Assay analyses of industrial sources releasing wastewater into Burlington's wastewater plant, including Elevate Textiles.

[72] Detlef Knappe, *Perfluorinated Compounds in Treated Wastewater and Biosolids from Burlington* at slide 5 (2012), https://perma.cc/5PMD-CC49.

[73] *See* City of Burlington, PFAS and 1,4-Dioxane Effluent Sampling (2025), https://perma.cc/48Y7-Q52R.

[74] City of Burlington, *Archive 2024-02-1 PFAS and 1,4-Dioxane Sampling* (2024), https://perma.cc/MZX8-4ZNV.

[75] Initial Review of EPA Office of Water Guidance Documents Memorandum, *supra* note 43.

[76] *See* 40 C.F.R. § 403.8(a); 33 U.S.C. § 1319(f).

B. Biosolids Regulation

In addition to enforcing the pretreatment program for PFAS, EPA should use its existing authority under section 405(d) of the Clean Water Act to protect communities from harmful concentrations of PFAS in sewage sludge—as it noted it intended to do after finalizing the Draft Risk Assessment.[77] Section 405(d) directs EPA to identify toxic pollutants that "may be present in sewage sludge in concentrations which may adversely affect public health or the environment" and to establish management practices and numerical limits for those pollutants.[78] EPA implements this authority through its biosolids regulations, which set pollutant limits, management practices, and monitoring requirements for sewage sludge that is land-applied, landfilled, or incinerated.[79] As discussed above, it is well-established that PFAS, including PFOS and PFOA, are present in sewage sludge in concentrations that "may adversely affect" public health, and EPA has already identified certain PFAS as present in sewage sludge under its section 405(d) authority.[80] EPA should therefore revise its biosolids regulations to limit or prohibit uses of biosolids that exceed protective PFAS thresholds.[81]

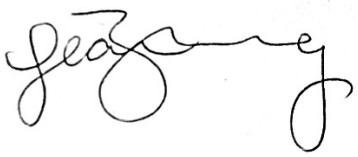
V. Conclusion

EPA is moving in the wrong direction with this voluntary, ineffective draft guidance. The agency should not retreat from the Draft Risk Assessment that already identifies unacceptable risks from PFAS-contaminated sewage sludge, especially where the evidence suggests those risks may be even greater than EPA originally estimated. Instead, EPA should finalize and strengthen the Risk Assessment and use its existing Clean Water Act authorities to prevent PFAS contamination at its source and adopt enforceable protections for communities. Voluntary guidance is no substitute for science-based regulation and will not protect farmland, food systems, drinking water resources, or the families who depend on them.

Sincerely,



Carroll Courtenay
Senior Attorney



Jean Zhuang
Senior Attorney

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[77] U.S. EPA, *Frequent Questions and Answers: Draft Sewage Sludge Risk Assessment for PFOA and PFOS*, https://perma.cc/884V-TTYW (last updated Mar. 31, 2026).
[78] 33 U.S.C. § 1345(d)(2)(A).
[79] *See* 40 C.F.R. §§ 503.1(a)(1)–(2).
[80] *See* U.S. EPA, *Report: Biosolids Biennial Report No.9 (Reporting Period 2020-2021)*, at 1, https://perma.cc/W32F-BE57; *Farmer v. United States Env't Prot. Agency*, 805 F. Supp. 3d 253, 257 (D.D.C. 2025).
[81] *See* 33 U.S.C. § 1345(d)(2)(C) (directing EPA to review its sewage-sludge regulations at least as often as every two years "for the purpose of identifying additional toxic pollutants and promulgating regulations for such pollutants"); *Farmer*, 805 F. Supp. 3d at 256–58 (discussing EPA's authority to regulate pollutants under section 405(d) of the Clean Water Act).

Attachment: Comments on Notice of Draft Sewage Sludge Risk Assessment for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS), Docket ID No. EPA-HQ-OW-2024-0504 (April 10, 2025)

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April 10, 2025

VIA regulations.gov

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Re: Comments on Notice of Draft Sewage Sludge Risk Assessment for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS), Docket ID No. EPA-HQ-OW-2024-0504

Dear Mr. Tobias and Mr. Nickerson:

The Southern Environmental Law Center and the 89 organizations listed below offer the following comments on the U.S. Environmental Protection Agency's Draft Sewage Sludge Risk Assessment for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS).[1]

AbleDifferently
Alliance of Nurses for Healthy Environments
Amphibian Foundation
Birds Georgia
Black-Sampit Riverkeeper
Cape Fear River Watch
Chesapeake Legal Alliance
Clean Water Action
Coastal Carolina Riverwatch
Coosa Riverkeeper
Dan Riverkeeper
Environment America Research & Policy Center
Alabama Rivers Alliance
Amigos Bravos
Atchafalaya Basinkeeper
Black Warrior Riverkeeper
Blue Water Baltimore
Center for Biological Diversity
Choctawhatchee Riverkeeper
Clean Water for North Carolina
Congaree Riverkeeper
Cowpasture River Preservation Association
Endangered Habitats League
Environment New Jersey

[1] EPA, *Draft Sewage Sludge Risk Assessment for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS)*, 90 Fed. Reg. 3859 (Jan. 15, 2025); EPA, *Two Actions Published by the Environmental Protection Agency with Comment Periods That Close February 24, 2025, and March 17, 2025*; *Notice of Comment Period Extensions*, 90 Fed. Reg. 10078 (Feb. 21, 2025) (extending comment period until April 16, 2025).

Environmental Integrity Project
Freshwater Future
Friends of the Rivers of Virginia
Great Egg Harbor Watershed Association
Hoosier Environmental Council
League of Conservation Voters
Learning Disabilities Association of America
Learning Disabilities Association of California
Learning Disabilities Association of Georgia
Learning Disabilities Association of Iowa
Learning Disabilities Association of Maryland
Learning Disabilities Association of Minnesota
Learning Disabilities Association of New Jersey
Learning Disabilities Association of North Carolina
Learning Disabilities Association of Oklahoma
Learning Disabilities Association of Texas
Learning Disabilities Association of Virginia

Lower Susquehanna Riverkeeper Association
Mobile Baykeeper
NAACP North Carolina State Conference
Nature Forward
North American Climate, Conservation and Environment (NACCE)
Ogeechee Riverkeeper
River Guardian Foundation
Satilla Riverkeeper
Snake River Waterkeeper
Tennessee Citizens for Wilderness Planning
The Clinch Coalition
The Watershed Center Grand Traverse Bay
TN Environmental Council
Virginia Conservation Network
Waterkeepers Chesapeake
Winyah Rivers Alliance

Environmental Working Group
Friends of the Reedy River
Georgia Interfaith Power and Light
Haw River Assembly
Kentucky Resources Council, Inc.
Learning Disabilities Association of Alabama
Learning Disabilities Association of Arkansas
Learning Disabilities Association of Delaware
Learning Disabilities Association of Illinois
Learning Disabilities Association of Maine
Learning Disabilities Association of Michigan
Learning Disabilities Association of Nebraska

Learning Disabilities Association of New York State
Learning Disabilities Association of Ohio

Learning Disabilities Association of South Carolina
Learning Disabilities Association of Utah
Learning Disabilities Association of Wisconsin
Mill Creek Alliance
MountainTrue
National Wildlife Federation
NC League of Conservation Voters
North Carolina Conservation Network

PennEnvironment
Safer States
Shoals Environmental Alliance
SouthWings
Tennessee Riverkeeper
The People's Justice Council
Grand Traverse Bay WATERKEEPER
Toxic Free North Carolina
Virginia League of Conservation Voters
West Virginia Rivers Coalition

I. Introduction

Throughout the country, farmers spread biosolids, or sludge, on their crops and pastures used for livestock. For decades, farmers were told by the corporations that market this sludge that it is a safe and effective fertilizer. But as demonstrated in the U.S. Environmental Protection Agency's ("EPA's") risk assessment and at farms around the country, much of this sludge is contaminated and is harming our communities and the families who live on farms and ranches.

The PFAS pollution in sludge comes from wastewater treatment plants. Across the country, thousands of industries send harmful chemical waste to municipal wastewater plants, and that waste often contains chemicals like per- and polyfluoroalkyl substances ("PFAS"), also known as forever chemicals. Because wastewater plants are not equipped to remove PFAS, the chemicals pass straight through—from the industries and into the wastewater plants' discharges. The pollution also makes it into the sludge that is spread onto farms throughout the nation.[2]

This has serious consequences for our country's farming families, our communities' drinking water sources, and our food supplies. For instance, PFAS-polluted milk has been found in dozens of dairy farms in Maine, forcing several to close.[3] Samples reached over 8,000 times health-based standards for the chemicals.[4] In Texas, farmers and ranchers are rightfully outraged after Synagro, a company that supplies sludge, provided them with PFAS-polluted sludge to put on their land.[5] There, families have struggled with health issues, dying farm animals and household pets, and the near-total destruction of their property values.[6] Johnson County, Texas has declared a state of emergency over farmland contaminated with PFAS.[7] Additionally, across the Southeast and elsewhere, PFAS-laden sludge has polluted groundwater wells and rivers that are used for drinking water, adding to the devastation posed by toxic chemical contamination.

As EPA determined in its risk assessment, the families who live on farms and ranches are the most threatened by PFAS-contaminated sludge because they are the people who rely most heavily on the lands where it has been applied. Many of these families unknowingly spread contaminated sludge on their lands because they were told that it was a safe and effective way to fertilize their farms. Their children and family members are the ones eating the vegetables, beef, fish, fruit, milk, and eggs from their farms. Their families are the ones that have the most to lose.

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[2] *See* Johnathan Sheets and Maddison Ledoux, *Addressing the Impacts of PFAS in Biosolids*, Wastewater Digest (Sept. 10, 2021), https://perma.cc/7TJK-4UDT; EPA, *PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024* (Oct. 2021), https://perma.cc/FXQ9-6LBR, at 16.

[3] Susan Cosier, *America's Dairyland May Have a PFAS Problem*, Nat. Res. Def. Council (Oct. 11, 2019), https://perma.cc/4V2C-ZZQ4; Kris Maher, *Maine Farmers Dump Milk, Lose Crops as Forever Chemicals Taint Soil*, Wall St. J. (July 4, 2022), https://perma.cc/3EJ4-V8M9; Kevin Miller, *'Complete Crisis' as PFAS Discovery Upends Life and Livelihood of Young Maine Farming Family*, Maine Public (Feb. 7, 2022), https://perma.cc/39GW-CFFC.

[4] Me. Dep't Agriculture, Conservation, & Forestry, *DACF Retail Milk Testing for PFAS Confirms Maine Milk Supply is Safe; High PFOS Level Detected on One Central Maine Farm* (July 24, 2020), https://perma.cc/2M6Y-JAJ3; EPA, Per- and Polyfluoroalkyl Substances (PFAS) Final PFAS National Primary Drinking Water Regulation (Feb. 19, 2025), https://perma.cc/L4W4-FGSE.

[5] First Amended Complaint and Election of July Trial, *James Farmer et al. v. Synagro*, C-03-CV-24-000598 (Baltimore Cty. Circuit, Feb. 27, 2024), https://perma.cc/WUY9-UFXQ, at 2-3.

[6] *Id.*

[7] Hiroko Tabuchi, *Texas County Declares an Emergency Over Toxic Fertilizer*, The New York Times (Feb. 14, 2025), https://www.nytimes.com/2025/02/14/climate/forever-chemicals-sewage-sludge-fertilizer-texas.html.

Despite this, the companies and utilities that are responsible for this pollution have so far showed little sympathy. As reported by the New York Times, Synagro, a company that manages more than 6.5 million tons of sludge each year, "is a part of a major effort to lobby Congress to ***limit the ability of farmers and others to sue*** to clean up fields polluted by the fertilizer."[8] Wastewater plants have similarly lobbied Congress to avoid liability from PFAS chemicals,[9] drafted state-level PFAS rules that require no reductions of PFAS,[10] and pushed back on EPA's attempts to ask wastewater plants to identify industrial PFAS sources.[11]

The harm that PFAS-polluted sludge causes farming families is not only unjust—it is unnecessary. Industries that use and release PFAS can and should be required to remove the chemicals before their waste ever gets to a wastewater plant, so that industries' PFAS do not end up in the sludge in the first place. Cities and towns that operate wastewater plants have the legal authority and obligation to require their industries to do just this—to treat their own industrial waste for PFAS. If this happened, we would not see the levels of PFAS that are ending up in the sludge[12]—sludge that is spread on millions of acres of farmland and harming communities throughout the country.

II. PFAS-laden sludge threatens farming families and other communities.

Nearly half of the sludge produced in the United States is disposed of by being spread onto fields and farmland.[13] Across the country, as many as 70 million cropland acres use sludge from wastewater plants as fertilizer.[14] This is deeply troubling because once PFAS-polluted sludge is sprayed onto such fields, the chemicals do not stay put. They flow into surface water and leak into groundwater that supply drinking water sources, and they contaminate food supplies.[15] And sludge can contain extremely high

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[8] Hiroko Tabuchi, *Their Fertilizer Poisons Farmland. Now, They Want Protection from Lawsuits*, The New York Times (Dec. 6, 2024), https://www.nytimes.com/2024/12/06/climate/sludge-fertilizer-synagro-lobbying.html (emphasis added).

[9] NACWA, *Coordinated Sector Letter Emphasizing Need for CERCLA Exemption* (Apr. 28, 2022), https://perma.cc/5KKW-LYJL, at 1.

[10] Trista Talton, *Utility industry has heavy hand in draft PFAS monitoring rule* (Mar. 17, 2025), https://perma.cc/W6L3-YTCN.

[11] NACWA, *NACWA Comments on the U.S. Environmental Protection Agency's Region 1 Draft National Pollutant Discharge Elimination System (NPDES) General Permit for Medium Wastewater Treatment Facilities in Massachusetts (MAG590000)* (Apr. 26, 2022), https://perma.cc/54SP-VJVG, at 2-3.

[12] Dorin Bogdan, *Evaluation of PFAS in Influent, Effluent, and Residuals of Wastewater Treatment Plants (WWTPs) in Michigan* (Apr. 2021), https://perma.cc/UC2J-KTKR, at 11-17.

[13] Tom Perkins, *'Forever Chemicals' May Have Polluted 20m Acres of US Cropland, Study Says*, The Guardian (May 8, 2022), https://perma.cc/K5H5-W6G4; *see also* EPA, *Basic Information About Sewage Sludge and Biosolids* (Mar. 12, 2025), https://perma.cc/P6E5-46XG.

[14] Jared Hayes, *EWG: 'Forever Chemicals' May Taint Nearly 70 Million Cropland Acres*, Env't. Working Group (Jan. 14, 2025), https://perma.cc/H7P9-G32A.

[15] *See* Andrew B. Lindstrom et al., *Application of WWTP Biosolids and Resulting Perfluorinated Compound Contamination of Surface and Well Water in Decatur, Alabama, USA*, 45 Env't. Sci. & Tech. 8015 (Apr. 22, 2011), at 8016; Jennifer G. Sepulvado et al., *Occurrence and Fate of Perfluorochemicals in Soil Following the Land Application of Municipal Biosolids*, 45 Env't. Sci. & Tech. (Mar. 29, 2011), at 8106; Janine Kowalczyk et al., *Transfer of Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) from*

levels of PFAS. Sludge produced at wastewater plants in Michigan, for example, have contained concentrations of PFOS (only one type of PFAS) reaching as high as 8,600,000 parts per trillion ("ppt"),[16] 8,600 times higher than the level EPA considered in its risk calculation. Such PFAS-polluted sludge threatens farming families and other communities across the nation.

A. Contaminated sludge threatens families who live on farms throughout the country.

As EPA determined in its risk assessment, families who live on farms and ranches where PFAS-polluted sludge has been sprayed are most threatened. They are the ones who most often eat the meat, fish, vegetables, and other food that comes from their farms, and they have been doing so for years. In this risk assessment, EPA made the devastating conclusion that eating food grown on these farms—something that every farming family should be able to do—significantly increases their and their children's risk of cancer and other negative health effects, including among other things, effects to the immune and cardiovascular systems, development, and liver.

First, EPA's assessment shows that families who live on or near "crop farms" (farms that are used to grow fruits and vegetables) are exposed to unacceptable levels of PFAS through the food that they eat from the farm, nearby fish that they catch and eat, as well as the water they drink. For instance:

- Nearly six children out of 10,000 who eat 1-2 meals of fish per week on these farms could get cancer later in life from those meals alone.[17] Their risk of developing non-cancer health effects from these meals is also 25 times higher than what is considered safe.[18]

- More than one out of 10,000 children who eats .58-1.4 g/kg of "protected vegetables," such as pumpkin, corn, peas, and beans on these farms could get cancer later in life from those meals alone.[19]

- Nearly five adults out of 10,000 who eat 1-2 servings of fish per week on these farms could get cancer from those meals alone.[20] Their risk of developing non-

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Contaminated Feed into Milk and Meat of Sheep: Pilot Study, 63 Archives Env't. Contamination & Toxicology 288 (Mar. 28, 2012), at 288-89; Holly Lee et al., *Fate of Polyfluoroalkyl Phosphate Diesters and Their Metabolites in Biosolids-Applied Soil: Biodegradation and Plant Uptake in Greenhouse and Field Experiments* 48 Env't. Sci. & Tech. 340 (Dec. 6, 2013), at 341.

[16] Bogdan, *supra* note 12, at 13 (reported in µg/Kg, translated to ppt).

[17] EPA, *Draft Sewage Sludge Risk Assessment for Perflourooctanoic Acid (PFOA) CASRN 1763-23-1* (Jan. 2025) (hereinafter *Risk Assessment*), https://perma.cc/YWE2-CJRB, at 103 (Table 34).

[18] *Risk Assessment*, *supra* note 17, at 103-04 (Table 34 & 35).

[19] *Id.* at 103 (Table 34).

[20] *Id.*

cancer health effects from these meals is also 21 times higher than what is considered safe.[21]

- Over four adults out of 10,000 could get cancer from drinking water sourced from surface water on or near their polluted farmland.[22]

- Over four children out of 10,000 could get cancer later in life from drinking water sourced from surface water on or near their family's polluted farmland.[23]

Families who live on or near "pasture farms" (farms that raise cows and chickens and crops used for livestock) are also exposed to harmful levels of PFAS when they rely on their land for their food and water. Families can be exposed by eating any of the beef or eggs from their farm, drinking milk from their cows, or eating fish caught on their land. For instance:

- Two to three children out of 10,000 who eat a few ounces of beef each day could get cancer later in life from those meals alone.[24]

- Two adults out of 10,000 who eat one serving of beef each day could get cancer from those meals alone.[25]

- More than six children out of 10,000 who eat one egg per day could get cancer later in life from those meals alone.[26]

- More than six adults out of 10,000 who eat one egg per day could get cancer from those meals alone.[27]

- More than two adults out of 1,000 who drink four cups of milk each day could get cancer from that alone.[28] Their risk of developing non-cancer health effects is also 18 times higher just from that milk than what is considered safe.[29]

- Almost four children out of 1,000 who drink 1-2 glasses of milk per day could get cancer later in life from drinking that milk alone.[30] Their risk of developing non-cancer health effects is also 34 times higher just from that milk than what is considered safe.[31] EPA emphasized that children that live on dairy farms likely

[21] *Risk Assessment*, *supra* note 17, at 103-04 (Table 34 & 35).
[22] *Id.* at 103 (Table 34).
[23] *Id.*
[24] *Id.* at 105 (Table 36).
[25] *Id.*
[26] *Id.*
[27] *Id.*
[28] *Id.*
[29] *Id.*
[30] *Id.* at 105 (Table 36).
[31] *Id.*

drink far more milk from the farms, and therefore, their risk of cancer and non-cancer health effects are far higher than estimated.[32]

- More than five adults out of 10,000 could get cancer from drinking water sourced from surface water on or near their polluted farmland.[33]

- Five to six children out of 10,000 could get cancer later in life from drinking water sourced from surface water on or near their family's polluted farmland.[34]

- Adults who eat 1-2 servings of fish per week on these farms face a risk of developing non-cancer health effects that is 39 times higher than what is considered safe.[35]

- Children who eat 1-2 meals of fish per week on these farms face a risk of developing non-cancer health effects that is 45 times higher than what is considered safe.[36]

While these numbers are devastating, the children and adults on both types of farms are far more likely to suffer from harmful health effects than these numbers suggest. As discussed in Section III of this letter, EPA's risk assessment *drastically* underestimated the levels of PFAS that these families are exposed to and consequently the risk they face. It is likely that families that live on these farms are actually dozens of times (sometimes, hundreds of times) more likely to have both cancer and non-cancer health effects.

B. Contaminated sludge threatens drinking water and food supplies for other communities.

Although EPA did not evaluate harm to the general population in the risk assessment, history has shown that PFAS-polluted sludge contaminates other communities' drinking water and food supplies.

Because PFAS do not break down in the environment, PFAS readily reach rivers near sites where sludge has been sprayed. One prominent example of this arises from rural northwest Georgia. There, the city of Trion operates a wastewater plant that accepts industrial waste from a textile manufacturer: Mount Vernon Mills.[37] For years, Mount Vernon released PFAS into Trion's wastewater plant—reported at concentrations as high

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[32] *Risk Assessment*, *supra* note 17, at 72-73.
[33] *Id.* at 105 (Table 36).
[34] *Id.*
[35] *Id.* at 105-06 (Table 37).
[36] *Id.* at 105-06 (Table 37).
[37] *See* Ga. Env't Prot. Div., *NPDES Permit No. GA0025607 Trion WPCP* (2019), https://perma.cc/WFV3-75BR; Town of Trion, *NPDES FORM 2A Application Overview* (2018), https://perma.cc/55N5-3R6M, at 18; *Ga. Env't Prot. Div., Consent Order EPD-WP-8894* (Apr. 13, 2020), https://perma.cc/XU6T-LVHC, at 1.

as 1,549 ppt.[38] Trion's wastewater plant did not have the technology to remove the toxic chemicals from the wastewater,[39] and as a result, PFAS ended up in the utility's discharge and sludge. EPA-collected data on Trion's sludge confirmed PFOA and PFOS at concentrations as high as 4,300 ppt and 250,000 ppt, respectively.[40] Later sampling confirmed total PFAS at concentrations as high as 1,641,470 ppt.[41] Unfortunately, that pollution spread to a nearby creek that serves as the drinking water supply for the city of Summerville, Georgia.[42] Prior to a settlement agreement that required Trion to control its PFAS pollution,[43] sampling of Summerville's finished drinking water showed PFOA and PFOS in combined concentrations exceeding 90 ppt[44]—magnitudes higher than what EPA considers safe.[45] The pollution did not stop in Summerville, however, but rather crossed state borders into the drinking water supplies for the cities of Centre and Gadsden, Alabama.[46]

PFAS-polluted sludge has similarly contaminated the drinking water in and around Dalton, Georgia. There, nearly 90 percent of the wastewater sent to the city's wastewater plant, Dalton Utilities, is made up of industrial wastewater, primarily from carpet manufacturers.[47] For decades, Dalton Utilities sprayed its sludge near the Conasauga River, upstream of the Oostanaula River, the drinking water supply for the city of Rome, Georgia.[48] Sampling collected in surface waters downstream of Dalton's sludge-application sites has shown PFAS contamination above 30,000 ppt.[49] As a result of this pollution, the city of Rome has had to spend millions of dollars to install a granular activated carbon filtration system.[50]

Drinking water contamination caused by PFAS-laden sludge is not unique to Georgia. In North Carolina, the city of Burlington sprays millions of gallons of sludge on

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[38] *See Enthalpy Analytical, LLC – Ultratrace, Town of Trion WWTP: Analytical Report 0820-703* (Aug. 24, 2020), https://perma.cc/Q8DV-B9H7, at 6.
[39] *See Trion WWTP Application*, *supra* note 37, at 6.
[40] *See Trion Consent Order*, *supra* note 37, at 4 (reported in ng/kg).
[41] *Enthalpy Analytical, LLC – Utratrace, Town of Trion: Analytical Report 1020-725* (Oct. 29, 2020), https://perma.cc/VQW6-B55F, at 7 (reported in ng/g).
[42] *See Trion Consent Order*, *supra* note 40, at 4–5.
[43] *See* Dennis Pillion, *Georgia Textile Mill Pledges to Stop Discharging PFAS Chemicals into Weiss Lake*, AL.COM (May 13, 2023), https://perma.cc/XM3H-53MK.
[44] *Trion Consent Order*, *supra* note 40, at 4.
[45] EPA, *PFAS National Primary Drinking Water Regulation*, 89 Fed. Reg. 32532 (Apr. 26, 2024) (setting drinking water standards for PFOA and PFOS as well as maximum contaminant level goals for both chemicals at 0 ppt).
[46] *See* Nathan Barlet, LSASD Project ID: 19-0253, Final Report: Phase 2: Priorization of PFAS Contributions to Weiss Lake (Sept. 10, 2019), https://perma.cc/8U2D-BVAV, at 17, 26 (figure 9).
[47] *Johnson v. 3M*, 563 F. Supp. 3d 1253, 1273 (N.D. Ga. 2021), *aff'd sub nom. Johnson v. 3M Co.*, 55 F.4th 1304 (11th Cir. 2022).
[48] *Id.* at 1274.
[49] *See* Drew Kann, *Rome is Grappling with Toxic 'Forever Chemicals' Fouling Waterways*, The Atlanta-J. Constitution (Oct. 14, 2022), https://www.ajc.com/news/rome-is-grappling-with-toxic-forever-chemicals-fouling-waterways/PQ3OZY6W4ZHVJJKENNQEAUGHZ4/.
[50] City of Rome, *A Rome Water & Sewer Division EPA Update Brief (PFOA/PFOS)* (June 16, 2022), https://perma.cc/UHC9-Z2R7.

fields in Alamance, Caswell, Chatham, and Orange Counties each year.[51] The PFAS in Burlington's sludge has been documented at levels as high as 11,953 ppt.[52] Sampling downstream of Burlington's sludge-application sites shows that PFAS from the city's sludge flows into the creeks, streams, and reservoirs nearby, including the drinking water supplies for Chapel Hill and Pittsboro, North Carolina.[53]

PFAS-polluted sludge also contaminates private drinking water wells because the chemicals leak into groundwater supplies.[54] In Decatur, Alabama, private wells near where Decatur Utilities sprayed its sludge were contaminated with PFAS, with some wells containing PFOA and PFOS as high as 61 ppt and 67 ppt, respectively.[55]

PFAS-contaminated sludge also threatens food supplies for communities throughout the country. For example, farms in Maine have discovered that their crops contain high levels of PFAS as a result of PFAS-tainted sludge being applied as fertilizers for decades.[56] Similarly, dairy farmers in Maine have had to dump thousands of gallons of milk (and others have had to close their operations) due to PFAS contamination that resulted from the land-application of sludge onto fields that their cows grazed upon.[57] In Michigan, at least one cattle farm has been ordered to stop selling its beef because elevated levels of PFOS were detected in the cuts of meat sold from the farm.[58] There, once again, the cattle had likely been poisoned by consuming feed polluted by PFAS-contaminated sludge.[59]

III. EPA's assessment recklessly underestimates the harm caused by PFAS-polluted sludge, yet still determines that the sludge is a serious threat to farming families.

EPA's risk assessment fails to capture many of the risks associated with PFAS-laden sludge. Nevertheless, the risk assessment still concludes that exposure to sludge "exceed[s] the agency's acceptable human health risk thresholds."[60] EPA should address

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[51] *See* City of Burlington, *2018 Annual Report Permit No. WQ0000520* (Feb. 4, 2019), https://perma.cc/87TU-DRSN, at 1.
[52] Detlef Knappe, Presentation, *Perfluorinated Compounds in Treated Wastewater and Biosolids from Burlington* (2013), https://perma.cc/5PMD-CC49.
[53] Southern Environmental Law Center, *Notice of Intent to Sue the City of Burlington for Violations of the Clean Water Act and the Resource Conservation and Recovery Act* (Nov. 7, 2019), https://perma.cc/QR5F-8PXV, at 15-19.
[54] *See* Peter B. McMahon, et al., *Perfluoroalkyl and Polyfluoroalkyl Substances in Groundwater Used as a Source of Drinking Water in the Eastern United States*, 56 Env't Sci. Tech. 2278, 2285 (2022), https://pubs.acs.org/doi/10.1021/acs.est.1c04795.
[55] *See, e.g.*, EPA, *Perfluorochemical (PFC) Contamination of Biosolids Near Decatur, Alabama* (Dec. 2009), https://perma.cc/5HGH-LTK9, at 3 (document reporting concentrations in parts per billion or "ppb").
[56] Tom Perkins, *'I Don't Know How We'll Survive': The Farmers Facing Ruin in America's 'Forever Chemicals' Crisis*, The Guardian (Mar. 22, 2022), https://perma.cc/WY3F-WHDL.
[57] Cosier, *supra* note 3; Maher, *supra* note 3; Miller, *supra* note 3.
[58] Garret Ellison, *Advisory Warns of PFAS in Beef from Michigan Cattle Farm*, MLive (Jan. 28, 2022), https://perma.cc/2PZN-JXWT.
[59] *Id.*
[60] *Risk Assessment*, *supra* note 17, at v.

its deficiencies to more accurately document the risk to farming families. Perhaps more importantly, given the conclusions in this assessment, EPA should also immediately direct efforts toward keeping PFAS out of sludge in the first place. As discussed later in these comments, EPA can do so by urging states and municipalities to use the Clean Water Act pretreatment program to require industrial sources to treat their own PFAS pollution before their waste ever reaches a wastewater plant.

First, EPA underestimates the risks of PFAS-polluted sludge by assuming that only 1 part per billion ("ppb") of PFOA and PFOS is in the sludge, when in fact the agency admits that the available data shows that "***nearly all biosolids have higher concentrations***."[61] The average of PFOS—a single PFAS compound—in Maine's sludge is between 16 ppb and 27 ppb.[62] The average PFOA level is between 5.3 ppb and 9.4 ppb.[63] Sampling from Michigan and California similarly show that PFAS levels in sludge is far higher than 1 ppb.[64] And a study conducted on sewage sludge from nearly one hundred wastewater treatment plants throughout the country determined that average levels of PFAS in sludge may even be much higher (as high as around 403 ppb for PFOS and around 34 ppb for PFOA).[65] Therefore, the actual risk of PFAS-contaminated sludge to farming families could be dozens of times, if not hundreds of times, higher than what is represented in EPA's risk assessment. For instance:

- If PFOA levels are 9.4 ppb (as witnessed in Maine), then:
    - More than 54 children out of 10,000 who eat 1-2 meals of fish per week on crop farms could get cancer later in life from those meals alone.[66]
    - More than 59 adults out of 10,000 who eat one egg per day on a pasture farm could get cancer from those meals alone.[67]
    - Nearly 20 adults out of 1,000 who drink four cups of milk each day on a pasture farm could get cancer from that alone.[68]
    - More than 36 children out of 1,000 who drink 1-2 glasses of milk on a pasture farm could get cancer later in life from drinking that milk alone.[69] Their risk of

[61] *Risk Assessment*, *supra* note 17, at 113 (emphasis added).
[62] *Id.*
[63] *Id.*
[64] *Id.*
[65] *See* Arjun K. Venkatesan, et al., *National inventory of perfluoroalkyl substances in archived U.S. biosolids from the 2001 EPA National Sewage Sludge Survey*, 252 J. of Hazardous Materials 413–418 (May 15, 2013), https://www.sciencedirect.com/science/article/abs/pii/S0304389413001921?via%3Dihub.
[66] *Risk Assessment*, *supra* note 17, at 103 (Table 34) (multiplying the cancer risk level by 9.4).
[67] *Id.* at 105 (Table 36) (multiplying the cancer risk level by 9.4).
[68] *Id.* (multiplying the cancer risk level by 9.4).
[69] *Id.* (multiplying the cancer risk level by 9.4).

developing non-cancer health effects is also more than 319 times higher just from that milk than what is considered safe.[70]

- More than 50 adults out of 10,000 could get cancer from drinking water sourced from surface water on or near their polluted pasture farmland.[71]

- More than 52 children out of 10,000 could get cancer from drinking water sourced from surface water on or near their polluted pasture farmland.[72]

- If PFOS levels are 27 ppb (as witnessed in Maine), then:

  - Children who eat 1-2 meals of fish per week on pasture farms have a risk of developing non-cancer health effects that is 1,215 times higher than what is considered safe.[73]

  - Adults who eat 1-2 servings of fish per week on pasture farms have a risk of developing non-cancer health effects that is 1,053 times higher than what is considered safe.[74]

EPA further states that "highly impacted biosolids can exceed *10 times* the average concentrations" found in Maine and elsewhere.[75]

- If the sludge is *highly impacted* and PFOA levels exceed 94 ppb (as suggested by EPA's risk assessment), then:

  - More than 545 children out of 10,000 who eat 1-2 meals of fish per week on crop farms could get cancer later in life from those meals alone.[76]

  - More than 592 adults out of 10,000 who eat one egg per day on a pasture farm could get cancer from those meals alone.[77]

  - More than 197 adults out of 1,000 who drink four cups of milk each day from a pasture farm could get cancer from that alone.[78]

  - More than 366 children out of 1,000 who drink 1-2 glasses of milk from a pasture farm could get cancer later in life from drinking that milk alone.[79]

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[70] *Risk Assessment*, *supra* note 17, at 105 (Table 36) (multiplying the hazard quotient by 9.4).
[71] *Id.* (multiplying the cancer risk level by 9.4).
[72] *Id.* at 105 (multiplying the cancer risk level by 9.4).
[73] *Id.* at 105-06 (Table 37) (multiplying the hazard quotient by 27).
[74] *Id.* (multiplying the hazard quotient by 27).
[75] *Id.* at 113 (emphasis added).
[76] *Id.* at 103 (Table 34) (multiplying the cancer risk level by 94).
[77] *Id.* at 105 (Table 36) (multiplying the cancer risk level by 94).
[78] *Id.* (multiplying the cancer risk level by 94).
[79] *Id.* (multiplying the cancer risk level by 94).

- More than 507 adults out of 10,000 could get cancer from drinking water sourced from surface water on or near their polluted pasture farmland.[80]

- More than 526 children out of 10,000 could get cancer from drinking water sourced from surface water on or near their polluted pasture farmland.[81]

- If the sludge is *highly impacted* and PFOS levels exceed 270 ppb (as suggested by EPA's risk assessment), then:

  - Children who eat 1-2 meals of fish per week on pasture farms have a risk of developing non-cancer health effects that is at least 12,150 times higher than what is considered safe.[82]

  - Adults who eat 1-2 servings of fish per week on pasture farms have a risk of developing non-cancer health effects that is at least 10,530 times higher than what is considered safe.[83]

EPA's assessment must therefore be revised. It should account for the actual level of PFAS in the sludge—not a manufactured number that does not align with reality.

Even more, EPA limits its assessment to only two PFAS compounds: PFOA and PFOS, when nearly 15,000 PFAS chemicals plague our environment, surface water, and groundwater.[84] As EPA acknowledges, many other types of PFAS are present in sludge in part because industry has begun to use shorter-chain compounds.[85] Recent literature confirms that other PFAS including perfluoroundecanoic acid ("PFUnA"), perfluorodecanoic acid ("PFDA"), and perfluorohexanoic acid ("PFHxA") "significantly contribute" to PFAS concentrations in sludge.[86] Yet the risk assessment fails to consider the harm posed by these and other PFAS chemicals, including precursors that could transform to PFOA and PFOS.[87] This oversight leads to a vast underestimation of risk, as shorter-chain PFAS harm human health in the same way that PFOA and PFOS do.[88] EPA should expand this assessment to at least include other PFAS with completed toxicity assessments, or for which the scientific literature exists to support toxicity.

Next, EPA's assessment greatly underestimates threats because it considers only one exposure pathway at a time—meaning that EPA did not consider the likely scenario where families consumed more than one type of contaminated food and/or water from their farms. The risk assessment therefore assumes that family members drink polluted water from their farm, but they purchase all their milk, fish, eggs, meat, fruit, and vegetables from another source that is completely uncontaminated. Or that they fish from a pond on their farm, but they do not eat any other food or drink any water that comes from their land. As EPA itself admits, this is extremely unrealistic—farmers and ranchers often use their land for multiple sources of food and/or water. For instance, one

[80] *Risk Assessment*, *supra* note 17, at 105 (Table 36) (multiplying the cancer risk level by 94).
[81] *Id.* (multiplying the cancer risk level by 94).
[82] *Id.* at 105-06 (Table 37) (multiplying the hazard quotient by 270).
[83] *Id.* (multiplying the hazard quotient by 270).

of the families that have sued Synagro for supplying it with PFAS-polluted sludge used their land for "raising cattle, freshwater fish, and game birds," for a "vegetable garden," and for drinking water and cooking.[89] EPA's assessment should assume that families who rely on PFAS-polluted lands realistically use their farms for more than one source of food and/or water.

EPA's assessment further assumes that family members will only live off polluted land for ten years and that, outside of a person's exposure to that polluted land for those ten years**, they are not being exposed to PFAS *at all*.** This means that "60 of their 70 years of life are assumed to have zero PFOA and PFOS exposure from any source."[90] This is near impossible. First, most families living off polluted land are not moving every ten years, and they will be highly exposed for much or all of their lifetimes. Second, even if they only live on polluted farmland for ten years, they will continue to be exposed to PFAS via other sources. PFAS are present in up to 10 percent of all public drinking water systems; the chemicals are in foods for the general population, consumer products, household dust, human breastmilk, etc.[91] It is almost certain that any individual will be exposed to some level of PFAS even if they only live on polluted farmlands for ten years. This is yet another reason that EPA's assessment greatly underestimates the risk to farming families and others who rely on land polluted by PFAS-laden sludge. This flaw must be corrected.

Next, EPA's assessment does not consider the combined risk of PFOA and PFOS, much less the risk associated with the presence of these two *and* the many other PFAS present in sludge. Humans are typically "exposed to a mixture of several PFAS compounds that may have synergistic effects,"[92] and current research suggests that toxicological effects of PFAS exposure may be "more related to total PFAS levels, rather than individual PFAS compounds."[93] To ensure EPA is adequately measuring the risk associated with PFAS-laden sludge, it must consider the impacts of exposure to multiple PFAS at a time.

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[84] NIH, Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) (last visited Apr. 8, 2025), https://perma.cc/5ZPD-JXEW.
[85] *Risk Assessment*, *supra* note 17, at 9.
[86] Ting Zhou et. al, *Occurrence, Fate, and Remediation for Per-and Polyfluoroalkyl Substances (PFAS) in Sewage Sludge: A Comprehensive Review*, J. of Hazardous Materials (Mar. 15, 2024), https://www.sciencedirect.com/science/article/pii/S0304389424002164, at 6.
[87] *Risk Assessment*, *supra* note 17, 113.
[88] *See, e.g.*, Megan Solan et al., *Short-Chain Per- and Polyfluoralkyl Substances (PFAS) Effects on Oxidative Stress Biomarkers in Human Liver, Kidney, Muscle, and Microglia Cell Lines*, 223 Env't Rsch. 115424 (Apr. 15, 2023).
[89] First Amended Complaint and Election of July Trial, *supra* note 5, at 16-17.
[90] *Risk Assessment*, *supra* note 17, at 113.
[91] *Id.* at 113-14.
[92] Jesse A. Goodrich et al., *Metabolic Signatures of Youth Exposure to Mixtures of Per- and Polyfluoroalkyl Substances*, 131 Env't Health Perspectives 027005-1, 027005-8 (Feb. 22, 2023), https://perma.cc/B9YT-B4DZ.
[93] *Id.* at 027005-9.

And finally, EPA's risk assessment fails to adequately analyze the heightened risk to children as well as pregnant and lactating women. Scientific literature consistently confirms that PFAS cause developmental effects in children,[94] and exposure to PFAS places pregnant women at higher risk for gestational diabetes and preeclampsia.[95] Given the increased vulnerabilities of these populations, the risk assessment should make explicit the heightened risks that PFAS-contaminated sludge poses to children and women of child-bearing years.

Collectively, these deficiencies significantly underestimate the risk to communities exposed to PFAS-laden sludge. EPA must address these deficiencies so that those directly impacted by polluted sludge understand the risks to their and their families' health.

IV. The vast majority of the PFAS pollution in our nation's sludge is preventable if industries are forced to treat their own PFAS waste.

The harm caused to these families is unnecessary. Wastewater plants that produce PFAS-laden sludge receive contaminated waste from their industrial customers—industries who pay these utilities to receive their industrially contaminated waste (also known as industrial users). The Clean Water Act anticipates this type of arrangement and requires wastewater plants to use their pretreatment authority to force industries to treat their own waste before it ever reaches the wastewater plants.

Controlling industrial sources of PFAS into wastewater plants would not only help prevent the chemicals from ending up in the wastewater plants' effluent, it would also help prevent the chemicals from building up in sludge. This would put the burden of cleanup on the polluters profiting off the use of these chemicals and drastically reduce the risk of spreading sludge onto farms throughout the country.

A. The Clean Water Act pretreatment program requires wastewater plants to control industrial sources of PFAS.

The Clean Water Act's pretreatment program governs the discharge of industrial wastewater to wastewater plants. The program is intended to place the burden of treatment on the industries that create harmful pollution, rather than on the taxpayers

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[94] *See generally* EPA, *Our Current Understanding of the Human Health and Environmental Risks of PFAS* (last visited Apr. 8, 2025), https://perma.cc/PVJ5-APHZ; Jennifer Ames et al., Effects of Early-life PFAS Exposure on Child Neurodevelopment: A Review of the Evidence and Research Gaps, 12 Current Env't Health Reports (2025), https://perma.cc/2LVW-X2Y7; Fei Luo et al., Exposure to Perfluoroalkyl Substances and Neurodevelopment in 2-Year-Old Children: A Prospective Cohort Study, 166 Env't Int. 107384 (Aug. 2022).

[95] John Szilagyi et al., *Perfluoroalkyl Substances (PFAS) and Their Effects on the Placenta, Pregnancy, and Child Development: a Potential Mechanistic Role for Placental Peroxisome Proliferator–Activated Receptors (PPARs)*, 7 Early Life Env't Health 222-230 (Aug. 18, 2020), https://perma.cc/SVB4-7U9D; Alicia Peterson et al., *PFAS concentrations in early and mid-pregnancy and risk of gestational diabetes mellitus in a nested case-control study within the ethnically and racially diverse PETALS cohort*, BMC Pregnancy & Childbirth (2023), https://perma.cc/H4K9-MZQJ.

that support municipal wastewater plants. Under the pretreatment requirements, wastewater plants are required to know what waste they receive from their industrial users.[96] EPA has confirmed that this requirement extends to pollutants that are not conventional or listed as toxic, like PFAS.[97] Wastewater plants must instruct their industries to identify their pollutants in an industrial waste survey[98] and then to apply for a pretreatment permit, by disclosing "effluent data," including on internal waste streams, necessary to evaluate pollution controls.[99] Significant industrial users are further required to provide information on "[p]rincipal products and raw materials . . . that affect or contribute to the [significant industrial user's] discharge."[100]

After obtaining information on what their industries discharge, wastewater plants are required to regulate their industries so that they do not cause "Pass Through" or "Interference," or otherwise violate pretreatment laws.[101] Pass Through is when an industrial discharge causes a wastewater plant to violate its own discharge permit,[102] including standard conditions such as the one requiring permittees to "take all reasonable steps to minimize or prevent any discharge or sludge use" that has a "reasonable likelihood of adversely affecting human health or the environment."[103] Industries are also not permitted to interfere with wastewater plant operations. Interference occurs when a discharge disrupts a wastewater plant's operations or its sludge use or disposal and violates the plant's discharge permit or other applicable laws.[104] Violating the prohibitions on Pass Through or Interference constitutes a violation of the Clean Water Act's pretreatment standards and requirements.[105]

To effectively prevent industries from causing Pass Through and Interference, wastewater plants have broad authority to: (1) "deny or condition" pollution permits for industries, (2) control industrial pollution "through Permit, order or similar means," and (3) "require" "the installation of technology."[106] Municipalities can also implement local limits to further control any industrial pollution received.[107]

These rules are how the Clean Water Act "assures the public that [industrial] dischargers cannot contravene the [Clean Water Act's] objectives of eliminating or at

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[96] 40 C.F.R. § 403.8(f)(2).
[97] *See* EPA, PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024 14 (Oct. 2021), https://perma.cc/LK4U-RLBH.
[98] 40 C.F.R. § 403.8(f)(2)(ii); EPA, Introduction to the National Pretreatment Program (Jun. 2011), https://perma.cc/95VY-S8YU, at 4-3.
[99] EPA, Industrial User Permitting Guidance Manual (2012), https://perma.cc/L92D-NEPY, at 4-2 to 4-3.
[100] 40 C.F.R. § 122.21(j)(6)(ii)(C).
[101] *Id.* §§ 403.8(a), 403.5(a)(1).
[102] Pass through is defined as "a discharge which exits the [treatment works] into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the [treatment works'] NPDES permit (including an increase in the magnitude or duration of a violation)." *Id.* § 403.3(p).
[103] *Id.* § 122.41(d).
[104] *Id.* § 403.3(k).
[105] *Id.* § 403.5(a)(1).
[106] 40 C.F.R. § 403.8(f)(1).
[107] *Id.* § 403.5.

least minimizing discharges of toxic and other pollutants simply by discharging indirectly through [wastewater plants] rather than directly to receiving waters."[108] The laws governing the program ensure that wastewater plants do not become dumping grounds for uncontrolled industrial waste.

B. As shown throughout the country, the pretreatment program can significantly reduce PFAS pollution in wastewater plant discharges and sludge.

Wastewater plants that have prioritized controlling industrial sources of PFAS have shown that they can drastically reduce the PFAS levels in their wastewater and sludge by effectively using their pretreatment program authority.

For instance, in Michigan, wastewater plants have significantly reduced PFAS pollution in their effluent and sludge by requiring industries to pre-treat for the chemicals. In 2018, after discovering that a municipal wastewater plant had been discharging PFOS into the Flint River,[109] Michigan's Department of Environment, Great Lakes, and Energy required all wastewater plants in the state to sample their industries' wastewater, implement PFOA and PFOS reductions at confirmed sources, and, if necessary, develop technology-based local limits to ensure control of PFAS pollution.[110] Over the following two years, wastewater plants collected PFAS data from their industries.[111] After that, wastewater plants that had significant PFAS pollution reduced industrial sources, including by requiring their industries to install granular activated carbon (and other effective PFAS treatment technologies) and to eliminate leaking sources of PFAS pollution.[112] This was successful. For the wastewater plants that required industries to reduce their PFAS pollution, PFOS concentrations were reduced *by over 90 percent*.[113] For most wastewater plants, reductions ranged between 96 and 99 percent.[114]

Concentrations in sludge were similarly reduced once industrial sources reduced their PFAS.[115] Recognizing the effectiveness of the pretreatment program in addressing PFAS contamination of biosolids, Michigan modified its sludge management program in 2021. The state began requiring wastewater plants to sample their sludge and, if PFOS levels were above a certain threshold, the wastewater plant had to investigate any industrial sources and develop a source reduction program.[116] In 2024, Michigan added

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[108] General Pretreatment Regulations for Existing and New Sources, 52 Fed. Reg. 1586, 1590 (Jan. 14, 1987) (codified at 40 C.F.R. § 403).
[109] Bogdan, *supra* note 12, at 5.
[110] *Id.*
[111] *Id.* at 5–6.
[112] *Id.* at 14 (table 9).
[113] *Id.*
[114] *Id.*
[115] Bogdan, *supra* note 12, at 13.
[116] Letter from Teresa Seidel, Water Resources Division, Michigan Dep't of Env't, Great Lakes, and Energy, to Permittee (Apr. 5, 2021), https://perma.cc/QEV7-9PXQ.

PFOA to the program.[117] Michigan's effective use of the pretreatment program has successfully reduced PFAS levels in sludge *by more than 90 percent*.[118]

Similar use of the pretreatment program has reduced PFAS pollution in central North Carolina. There, the city of Burlington operates a wastewater plant that receives industrial wastewater from multiple industrial sources of PFAS, including a textile manufacturer named Burlington Finishing (formerly, Elevate Textiles). Burlington Finishing's PFAS discharges have been documented at levels higher than *10.8 million ppt*[119] and have, in combination with other sources, caused the wastewater plant to discharge PFAS at concentrations exceeding 33,000 ppt.[120] In addition to its wastewater pollution, Burlington's sludge similarly contained levels of PFAS at nearly 12,000 ppt.[121]

Because this pollution was contaminating downstream drinking water, Haw River Assembly—a non-profit based in Pittsboro, North Carolina (a community downstream of Burlington)—threatened to sue the city. The parties ultimately reached an agreement that required the city to use its pretreatment authority. Burlington agreed to investigate its industries and require them to stop their pollution before it reached its wastewater plant.[122] Industries (including Burlington Finishing) were eventually given the option to treat their wastewater, discontinue the use of PFAS, or install other processes that would prevent the chemicals from reaching the city's wastewater plant.[123] As a result of these pretreatment tools, PFAS in Burlington's wastewater have already decreased by more than 90 percent.[124] In addition, the PFAS in Burlington's sludge have decreased,[125] and are expected to further decrease as industries complete their steps to treat and stop their flow of PFAS.

The case studies above demonstrate that effective use of the pretreatment program can significantly reduce toxic PFAS in sludge and our drinking water sources. While it traditionally falls on municipal wastewater plants to carry out the pretreatment program, it is up to EPA and states with delegated authority to ensure wastewater plants

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[117] Letter from Phil Argiroff, Water Resources Division, Michigan Dep't of Env't, Great Lakes, and Energy, to Permittee (Dec. 27, 2023), https://perma.cc/LA93-2ZE5.
[118] Jennifer Bush, *Michigan's Management of PFAS in Wastewater Treatment Plants and Associated Biosolids* (Jan. 19, 2023), https://perma.cc/KHK3-8FHB, at slide 15.
[119] Env't Analytical Chem. Lab., PFAS Analytical Data from Sampling of the City of Burlington's Wastewater plant Influent and Effluent and Elevate Textiles' Wastewater Discharges, Duke Univ., https://perma.cc/46YY-A7GG. The Environmental Analytical Chemistry Laboratory at Duke University—on behalf of Haw River Assembly and the Southern Environmental Law Center—conducted Targeted and Total Oxidizable Precursor (TOP) Assay analyses of industrial sources releasing wastewater into Burlington's wastewater plant, including Elevate Textiles.
[120] City of Burlington, *Archive 2024-02-1 PFAS and 1,4-Dioxane Sampling* (2024), https://perma.cc/MZX8-4ZNV.
[121] Knappe, *supra* note 52, at slide 5.
[122] City of Burlington and Haw River Assembly, Memorandum of Agreement (Oct. 22, 2020), https://perma.cc/VL9D-KDL8.
[123] City of Burlington and Haw River Assembly, Settlement Agreement (Aug. 1, 2023), https://perma.cc/T69T-6J5Y.
[124] *See* City of Burlington, PFAS and 1,4-Dioxane Effluent Sampling (2025), https://perma.cc/48Y7-Q52R.
[125] *Archive 2024-02-1 PFAS and 1,4-Dioxane Sampling*, *supra* note 120.

are doing so.[126] As EPA continues to evaluate the risk associated with PFAS-laden sludge, we urge the agency to enforce the pretreatment program as a first step towards reducing this ongoing contamination.

V. EPA must do more to control industrial PFAS contamination.

The prior administration took significant steps toward addressing PFAS pollution by adopting rules limiting the concentrations of certain PFAS allowed in drinking water and listing two PFAS as hazardous substances under the nation's Superfund law. These rules are important for protecting communities from existing contamination and must remain in place.

At the same time, EPA must also focus on rules that prevent industries from releasing toxic PFAS pollution in the first place. The Biden-Harris administration had planned to limit the amount of PFAS that industries can release into rivers and municipal wastewater plants through Clean Water Act Effluent Limitation Guidelines, as well as begin a rulemaking to list nine PFAS as hazardous constituents under the Resource Conservation and Recovery Act. To further protect our communities, EPA should continue these, and other regulatory efforts, designed to ensure that PFAS are kept out of environment.

VI. Conclusion

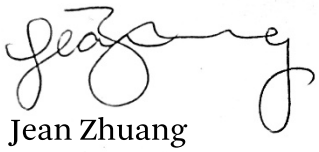
As EPA's risk assessment shows, the families who rely on farms and ranches throughout the country are most at risk from PFAS-laden sludge. That is because, for decades, they have been told that this sludge was safe for their land, their food and water, and their families. It is unacceptable that these communities have been exposed to these toxic chemicals in the first place. Not only is this harm unjust, but it is also avoidable. Industries that use PFAS chemicals (and therefore profit off them) should bear the burden of treating for this pollution—so that PFAS do not end up in sludge in the first place.

EPA must do two things with this risk assessment. First, the assessment recklessly underestimates the harm that PFAS-polluted sludge causes to farming families—it must be amended to reflect reality. Sludge is far more polluted than the assessment assumes, and families are exposed in more ways than one. Second, EPA must use the assessment to act on industrial PFAS pollution that is being sent to wastewater plants throughout the country. It must begin using its authority to require industries to pre-treat for PFAS so that their industrial chemical pollution does not reach wastewater plants.

[126] *See* 40 C.F.R. § 403.8(a); 33 U.S.C. § 1319(f).

Thank you for considering these comments. Please contact SELC at 919-967-1450 or jzhuang@selc.org if you have any questions regarding this letter.

Sincerely,



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