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Via E-Mail

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Re: Opposition to Polluter-Written PFAS and 1,4-Dioxane Minimization Rules

Dear Ms. Preston and Ms. Shelton:

The Southern Environmental Law Center, on behalf of Cape Fear River Watch, Clean Cape Fear, Clean Water for North Carolina, Coastal Carolina Riverwatch – White Oak Waterkeeper, Grays Creek Residents United Against PFAS in Our Wells and Rivers, Haw River Assembly, League of Women Voters, North Carolina Conservation Network, North Carolina Environmental Justice Network, North Carolina Sierra Club, North Carolina Stop GenX in Our Water, Sustainable Sandhills, and Toxic Free North Carolina, writes to express our strong opposition to the proposed PFOA, PFOS, and GenX Monitoring & Minimization Rules and the 1,4-Dioxane Monitoring & Minimization Rules (collectively "the proposed rules").[1] We address both sets of rules in this letter given the similarity in rule language and the persistent nature of both PFAS and 1,4-dioxane. This comment letter expressly incorporates by reference several letters previously sent to the Environmental Management Commission ("EMC") on July 8, 2025, December 10, 2025, and January 7, 2026.[2]

I. Introduction

Across our state, as many as 4.8 million North Carolinians drink water with unsafe levels of per- and polyfluoroalkyl substances ("PFAS"),[3] and over 1 million drink water laden with 1,4-

[1] *See* Proposed Amendments to 15A N.C. Admin. Code 02B .0512, PFOA, PFOS, and Gen X Monitoring and Minimization, North Carolina Register, at 1459 (Mar. 16, 2026); Proposed Amendments to 15A N.C. Admin. Code 02H .0923, PFOA, PFOS, and Gen X Monitoring and Minimization Program, North Carolina Register, at 1463 (Mar. 16, 2026); Proposed Amendments to 15A N.C. Admin. Code 02B .0513, 1,4-Dioxane Monitoring and Minimization, North Carolina Register, at 1468 (Mar. 16, 2026); Proposed Amendments to 15A N.C. Admin. Code 02H .0924, 1,4-Dioxane Monitoring and Minimization Program, North Carolina Register, at 1475 (Mar. 16, 2026).
[2] Letter from Hannah Nelson & Jean Zhuang, SELC, to JD Solomon, EMC (July 8, 2025), Attachment A; Letter from Hannah Nelson & Jean Zhuang, SELC, to JD Solomon, EMC (Dec. 10, 2025), Attachment B; Letter from Hannah Nelson & Jean Zhuang, SELC, to JD Solomon, EMC (Jan. 7, 2026), Attachment C.
[3] The Southern Environmental Law Center's Senior Geospatial Analyst, Libbie Weimer, developed this statistic by synthesizing data across federal and state PFAS monitoring sources including from EPA's Fifth Unregulated Contaminant Monitoring Rule ("UCMR5"), the N.C. PFAS Research Network, and N.C. DEQ. *UCMR 5 Data Finder*, EPA (Jan. 15, 2026), https://www.epa.gov/dwucmr/fifth-unregulated-contaminant-monitoring-rule-data-

dioxane.[4] In addition, harmful levels of PFAS have been detected in North Carolina fish[5] and crops.[6] In certain parts of the state, women and children are told to refrain from eating even one fish to protect themselves from devastating health impacts.[7] Given this crisis, the Department of Environmental Quality ("the Department") spent years trying to promulgate health-protective water quality standards that would control these industrial chemicals statewide.[8] The agency's rules would have protected families and required industry to bear the cost of its own pollution.

But when the time came for the EMC to adopt the Department's health-protective water quality standards, the EMC blocked the rules and set forth a "monitoring and minimization" approach, claiming that before the state could limit industrial pollution, it had to consult with the U.S. Food and Drug Administration ("FDA") and give industries a chance to voluntarily reduce their pollution.[9] The EMC's justifications for abandoning the Department's strong rules are nothing more than smoke and mirrors. There is no requirement in state or federal law that would mandate the EMC to consult with the FDA, nor is there a requirement to adopt a monitoring and minimization approach before it can proceed to health-protective water quality standards.[10] **The EMC could have adopted water quality standards for PFAS and 1,4-dioxane years ago, but it has deliberately chosen not to—leaving millions of North Carolinians exposed to harmful levels of toxic chemical pollution**.

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finder#data-finder; *Data*, PFAS Research Network, https://ncpfasnetwork.com/data/ (last visited Apr. 23, 2026); *DEQ PFAS Sampling of Public Water Systems*, N.C. DEQ, https://www.deq.nc.gov/news/key-issues/emerging-compounds/understanding-pfas/deq-pfas-sampling-public-water-systems (last visited June 11, 2026). Results were then filtered to only include community public water systems in North Carolina where surface water or purchased surface water is the primary drinking water source. Counts for population sourced from EPA's Enforcement and Compliance History Online ("ECHO") tool. *Facility Search – Drinking Water Systems*, EPA ECHO, https://echo.epa.gov/tools/web-services/facility-search-drinking-water (last visited May 5, 2026).

[4] *See* N.C. DEQ, 1,4-Dioxane in Drinking Water Legislative Report (May 1, 2024), at 7–8, https://perma.cc/T94L-JTCK (explaining that those drinking water from the Cape Fear River Basin were exposed to some of the highest 1,4-dioxane levels in the country); *see also* Hannah McCloskey, *A Closer Look at PFAS Drinking Water Regulations*, N.C. Collaboratory (Jan. 17, 2025), https://collaboratory.unc.edu/news/2025/01/17/a-closer-look-at-pfas-drinking-water-regulations/#:~:text=PFAS%20have%20been%20contaminating%20NC's,including%20the%20City%20of%20Wilmington (explaining that more than 1.5 million people drink water from the Cape Fear River Basin).

[5] *See* Anna K. Boatman et al., *Assessing Per- and Polyfluoroalkyl Substances in Fish Fillet Using Non-Targeted Analyses*, 58 Env't Sci. & Tech. 14486–14495 (2024), https://perma.cc/5QN5-ENPX; N.C. DHHS, *NCDHHS Recommends Limiting Fish Consumption from the Middle and Lower Cape Fear River Due to Contamination With "Forever Chemicals"* (July 13, 2023), https://www.ncdhhs.gov/news/press-releases/2023/07/13/ncdhhs-recommends-limiting-fish-consumption-middle-and-lower-cape-fear-river-due-contamination [hereinafter DHHS, Fish Consumption Advisory]; N.C. DEQ, DEQ Water and Fish Study Presentation: Saltwater Samples (Oct. 1, 2025), https://perma.cc/K2BK-XPXU.

[6] Pingping Meng et al., *Residential Garden Produce Harvested Near a Fluorochemical Manufacturer in North Carolina Can Be An Important Fluoroether Exposure Pathway*, 72 J. Agric. & Food Chem. 26874 (2024), https://perma.cc/W7EP-7DMJ; *NC Farmer Losing Crop Because of Unsafe Levels of Chemicals in Water*, ABC11 (July 15, 2024), https://abc11.com/post/nc-farmer-losing-crop-because-unsafe-levels-chemical/15061984/.

[7] *See* DHHS, Fish Consumption Advisory, *supra* note 5.

[8] *See generally* N.C. DEQ, Fiscal Note for Adoption Amendment of 15A NCAC 02B .0200 and 15A NCAC 02B .0400 (July 27, 2024), at 2, https://perma.cc/6YPA-HUTT [hereinafter DEQ, PFAS Standards Fiscal Note].

[9] N.C. EMC, Water Quality Committee September 11, 2024 Meeting Minutes (Sept. 2024), at 6–7, https://perma.cc/S7D8-M8S2..

[10] *See* N.C. Gen. Stat. § 150B-21.2 (providing the procedures for adopting permanent rules in North Carolina); 40 C.F.R. § 131 (providing procedure for adopting water quality standards under the Clean Water Act).

As written, the EMC's proposed rules would allow nearly 500 industrial facilities and more than 100 wastewater plants to continue to pollute our rivers, creeks, and drinking water supplies indefinitely. These proposed rules will not protect North Carolina families, businesses, churches, and schools. Instead, they represent a step *backwards* from current progress. We collectively urge the EMC to:

- Abandon the toothless monitoring and minimization approach; and
- Immediately adopt health-protective water quality standards.

We oppose the monitoring and minimization rules in their entirety. But if the EMC continues with the ill-conceived approach, it must—at the very least—do the following:

- Include a mandatory reduction target that all minimization plans must achieve;
- Include significant penalties if a discharger fails to meet the reduction target;
- Expand the monitoring requirement to mandate all direct industrial dischargers and significant industrial users submit the full laboratory reports containing all PFAS analytes detected under EPA Method 1633 to the Department;
- Ensure that all industries across the state—not just those with certain industry codes—fall under the purview of the PFAS and 1,4-dioxane rules;
- Ensure that known sources of PFAS and 1,4-dioxane pollution immediately begin minimization efforts; and
- Mandate that all dischargers continue to monitor and perform minimization activities until monitoring or reduction targets are incorporated into National Pollutant Discharge Elimination System ("NPDES") permits or pretreatment permits as enforceable terms and limits.

II. North Carolina has a PFAS and 1,4-dioxane problem.

a. PFAS are a group of thousands of toxic chemicals that cause devastating impacts at very low levels.

PFAS are a group of man-made chemicals manufactured and used broadly by industry since the 1940s.[11] Data consistently confirm that PFAS pose a significant threat to human health at extremely low concentrations. Two of the most studied PFAS—perfluorooctanoic acid ("PFOA") and perfluorooctane sulfonate ("PFOS")—are bioaccumulative and highly persistent in humans.[12] These chemicals build up in the human body and are associated with developmental effects to fetuses and infants, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, decreased immune response to vaccines, reduced hormone levels, delayed puberty, and lower birth weight and size.[13] Recent literature also suggests PFAS

[11] Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances, 87 Fed. Reg. 36848, 36849 (June 21, 2022) [hereinafter PFAS Drinking Water Health Advisory]; *Our Current Understanding of the Human Health and Environmental Risks of PFAS*, EPA (Mar. 16, 2022), https://perma.cc/V6PX-2PNK.

[12] PFAS Drinking Water Health Advisory, *supra* note 11, at 36849; EPA, Interim Drinking Water Health Advisory: Perfluorooctanoic Acid (PFOA) CASRN 335-67-1 (June 2022), at 3–4, https://perma.cc/F89R-PJUV; EPA, Interim Drinking Water Health Advisory: Perfluorooctane Sulfonic Acid (PFOS) CASRN 1763-23-1 (June 2022), at 3–4, https://perma.cc/TQM6-57PZ.

[13] EPA, Drinking Water Health Advisories for PFAS: Fact Sheet for Communities (June 2022), at 1–2, https://perma.cc/T7FQ-EKD6; Agency for Toxic Substances and Disease Registry, Toxicological Profile for

exposure can result in decreased fertility in women and men,[14] decreased bone density in children,[15] and higher infant mortality rates.[16] Based on many of the same data, the International Agency for Research on Cancer determined that PFOA is carcinogenic to humans.[17]

Exposure to other PFAS, such as perfluorobutane sulfonic acid ("PFBS"),[18] perfluorobutyric acid ("PFBA"),[19] perfluorohexanoic acid ("PFHxA"),[20] perfluorohexanesulfonic acid ("PFHxS"),[21] perfluorononanoic acid ("PFNA"),[22]

Perfluoroalkyls (May 2021) [hereinafter ATSDR Toxicological Profile for PFAS], https://perma.cc/L8PY-DYKN; PFAS National Primary Drinking Water Regulation Rulemaking, 88 Fed. Reg. 18638, 18642 (Mar. 29, 2023) (discussing developmental effects).

[14] Nathan J. Cohen et al., *Exposure to Perfluoroalkyl Substances and Women's Fertility Outcomes in a Singaporean Population-Based Preconception Cohort*, 873 Sci. Total Env't 162267 (2023), https://perma.cc/53ZG-BJX5; *see also* Zhangbei Sun et al., *Toxic Effects of Per- and Polyfluoroalkyl Substances on Sperm: Epidemiological and Experimental Evidence*, J. Frontiers in Endocrinology (Feb. 20, 2023), https://doi.org/10.3389/fendo.2023.1114463.

[15] Jessie Buckley et al., *Per- and Polyfluoroalkyl Substances and Adolescent Bone Mineral Density: Assessing Periods of Susceptibility*, J. of the Endocrine Society (Mar. 17, 2026), https://doi.org/10.1210/jendso/bvag039.

[16] *See* Robert Baluja et al., *PFAS-contaminated Drinking Water Harms Infants*, 122 Sustainability Science 50 (Dec. 8, 2025), https://doi.org/10.1073/pnas.2509801122.

[17] *IARC Monographs* evaluate the carcinogenicity of perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS), Int'l Agency for Rsch. On Cancer (Dec. 1, 2023), https://www.iarc.who.int/news-events/iarc-monographs-evaluate-the-carcinogenicity-of-perfluorooctanoic-acid-pfoa-and-perfluorooctanesulfonic-acid-pfos/.

[18] *See, e.g.*, EPA, Fact Sheet: Toxicity Assessment for PFBS (2021), https://www.epa.gov/chemical-research/learn-about-human-health-toxicity-assessment-pfbs (summarizing health harms of PFBS to include negative impacts on the thyroid, reproductive organs and tissues, developing fetus, and kidney); EPA, Provisional Peer-Reviewed Toxicity Values for Perfluorobutane Sulfonic Acid (CASRN 375-73-5) and Related Compound Potassium Perfluorobutane Sufonate (CASRN 29420-49-3) (Apr. 2021), at 1, https://www.ncbi.nlm.nih.gov/books/NBK586813/pdf/Bookshelf_NBK586813.pdf (summarizing health impacts of PFBS to include thyroid, developmental, and kidney health concerns); Julia Happel et al., *PFBS Disrupts Lipid Metabolism and Mitochondrial Function in Human Trophoblast Cells*, 518 Toxiciology 154269 (Dec. 2025), https://www.sciencedirect.com/science/article/abs/pii/S0300483X25002288 (linking PFBS with pregnancy complications).

[19] EPA, IRIS Toxicological Review of Perfluorobutanoic Acid (PFBA, CASRN 375-22-4) and Related Salts (Dec. 2022), at xii, https://perma.cc/7N53-6K2M (explaining that "available evidence indicates that developmental, thyroid, and liver effects in humans are likely caused by PFBA exposure in utero or during adulthood").

[20] EPA, IRIS Toxicological Review of Perfluorohexanoic Acid [PFHxA, CASRN 307-24-4] and Related Salts (Apr. 2023), at xiv, https://perma.cc/6562-8JA5 (concluding exposure to PFHxA "likely causes" liver, fetal development, and thyroid effects, as well as decreased red blood cell counts).

[21] EPA, IRIS Toxicological Review of Perfluorohexanesulfonic Acid (PFHxS, CASRM 335-46-4) and Related Salts (Jan. 2025), https://iris.epa.gov/document/&deid=363894 (stating that PFHxS is linked to thyroid and developmental immune effects in humans, and that PFHxS might also cause decreased birth weigh, neurodevelopmental effects, and decreased liver function).

[22] EPA, IRIS Toxicological Review of Perfluorononanoic Acid (PFNA) and Related Salts (Public Comment and External Review Draft) (Mar. 2024), at xx–xxi, https://perma.cc/S6KK-EBVV (concluding that PFNA exposure "demonstrates" developmental effects and indicates liver and reproductive effects as likely); Cheryl E. Rockwell et al., *Acute Immunotoxic Effects of Perfluorononanoic Acid (PFNA) in C57BL/6 Mice*, S4-002 J. Clinical & Experimental Pharmacology 6–7 (2013), https://perma.cc/GH27-BHL9 (concluding that PFNA can disrupt blood cell functions and alter immune system responses); ATSDR Toxicological Profile for PFAS, *supra* note 13, at 7–21 (noting exposure to PFNA decreases pup survival in rodents, increases risk of high cholesterol, increases risk of early menopause, and alters immune responses); Francesca Coperchini et al., *Thyroid Disrupting Effects of Old and New Generation PFAS*, 11 Frontiers Endocrinology 7–13 (2021), https://perma.cc/VSK9-KBHR; Natalie M. Crawford et al., *Effects of Perfluorinated Chemicals on Thyroid Function, Markers of Ovarian Reserve, and Natural Fertility*, 69 Reprod. Toxicology 53–59 (2017), https://perma.cc/99JY-94KN; Ryan C. Lewis et al., *Serum Biomarkers of Exposure to Perfluoroalkyl Substance in Relation to Serum Testosterone and Measures of Thyroid*

perfluorodecanoic acid ("PFDA"),[23] perfluoropentanoic acid ("PFPeA"),[24] and perfluoroheptanoic acid ("PFHpA"),[25] is associated with many of the same health outcomes as exposure to PFOA and PFOS. Unfortunately, exposure to a mixture of PFAS can worsen known health effects.[26]

Given these harms, EPA has adopted several draft and final rules to reduce our exposure to PFAS, demonstrating that virtually no level of exposure to these chemicals is safe:

- **Health Advisories**: In June 2022, EPA established updated lifetime health advisories for PFOA and PFOS in drinking water of 0.004 ppt and 0.02 ppt, respectively.[27]
- **Drinking Water Standards**: Using the data informing the health advisories, in April 2024, EPA set limits for PFOA and PFOS in drinking water at 4 ppt.[28]
- **Hazardous Substances Listing**: In May 2024, EPA listed PFOA and PFOS as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act.[29]
- **Human Health Water Quality Criteria**: In December 2024, EPA released draft human health water quality criteria for PFOA, PFOS, and PFBS.[30] These criteria represent the ambient concentration that, if not exceeded, "will protect the general population from adverse health effects due to ingesting water, fish, and shellfish from inland and nearshore water bodies."[31] As drafted, EPA concludes that

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Function Among Adults and Adolescents from NHANES 2011-2012, 12 Int'l J. Env't Rsch. & Pub. Health 6098–114 (2015), https://perma.cc/C53W-5B7Y.

[23] EPA, IRIS Toxicological Review of Perfluorodecanoic Acid (PFDA) and Related Salts: CASRN 335-76-2 (July 2024), at xvii–xx, https://perma.cc/N3DM-RG3Q.

[24] Xin Liu et al., *Structure-Based Investigation on the Association Between Perfluoroalkyl Acids Exposure and Both Gestational Diabetes Mellitus and Glucose Homeostasis in Pregnant Women*, 127 Env't Int'l 85–93 (2019), https://perma.cc/V86G-BP4R; Surabhi Shah-Kulkarni et al., *Prenatal Exposure to Perfluorinated Compounds Affects Thyroid Hormone Levels in Newborn Girls*, 94 Env't Int'l 607–13 (2016), https://perma.cc/VDR2-XAL6; Xiaofei Song et al., *Biomonitoring PFAAs in Blood and Semen Samples: Investigation of a Potential Link Between PFAAs Exposure and Semen Mobility in China*, 113 Env't Int'l 50–54 (2018), https://perma.cc/QP45-5JDW.

[25] European Chemicals Agency, Committee for Risk Assessment RAC Opinion: Proposing Harmonised Classification and Labelling at EU Level of Perfluoroheptanoic Acid; Tridecafluoroheptanoic Acid (Dec. 10, 2020), https://perma.cc/3N4G-S4Q9 (finding PFHpA may cause liver toxicity as well as fetal development concerns including lower birth weight, decreased survival, and skeletal malformations).

[26] Emma V. Preston et al., *Prenatal Exposure to Per- and Polyfluoroalkyl Substances and Maternal and Neonatal Thyroid Function in the Project Viva Cohort: A Mixtures Approach*, 139 Env't Int'l 1 (2020), https://perma.cc/DJK3-87SN.

[27] PFAS Drinking Water Health Advisory, *supra* note 11, at 36848.

[28] PFAS National Primary Drinking Water Regulation, 89 Fed. Reg. 32532, 32532 (Apr. 26, 2024) (setting drinking water standards and also a maximum contaminant level goal of 0 ppt for PFOA and PFOS in recognition of the negative health impacts associated with those chemicals).

[29] Designation of Perfluorooctanoic Acid (PFOA) and Perfluorooctanesulfonic Acid (PFOS) as CERCLA Hazardous Substances, 89 Fed. Reg. 39124, 39124 (May 8, 2024).

[30] Draft National Recommended Ambient Water Quality Criteria for the Protection of Human Health for Perfluorooctanoic Acid, Perfluorooctane Sulfonic Acid, and Perfluorobutane Sulfonic Acid, 89 Fed. Reg. 105041, 105042 (Dec. 26, 2024) [hereinafter PFAS Draft Human Health Criteria]; *see also* EPA, Technical Fact Sheet: Draft National Recommended Human Health Ambient Water Quality Criteria for PFOA, PFOS, and PFBS (Dec. 2024), at 2 [hereinafter PFAS Draft Human Health Criteria Factsheet], https://perma.cc/Q4FS-4KDY.

[31] PFAS Draft Human Health Criteria Factsheet, *supra* note 30, at 2.

ambient concentrations of PFOA, PFOS, and PFBS in rivers that support organisms should not exceed 0.00036 ppt, 0.07 ppt, and 500 ppt, respectively.

While the harms to human health are extreme, PFAS are also detrimental to wildlife. PFAS are extremely resistant to breaking down in the environment.[32] Once released, the chemicals can travel long distances and bio-accumulate in organisms.[33] The chemicals have been shown to cause damaging effects in fish,[34] amphibians,[35] reptiles,[36] mollusks,[37] other aquatic invertebrates,[38] sharks,[39] penguins,[40] dolphins,[41] whales,[42] and egrets[43]—resulting in

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[32] Carol F. Kwiatkowski et al., *Scientific Basis for Managing PFAS as a Chemical Class*, 7 Env't Sci. & Tech. Letters 535 (2020), https://perma.cc/Z28W-7KVQ.

[33] *See What are PFAS?*, Agency for Toxic Substances & Disease Registry, https://perma.cc/M2XX-LT52 (last visited Mar. 21, 2024); *see also Our Current Understanding of the Human Health and Environmental Risks of PFAS*, *supra* note 11.

[34] Lianguo Chen et al., *Perfluorobutanesulfonate Exposure Causes Durable and Transgenerational Dysbiosis of Gut Microbiota in Marine Medaka*, 5 Env't Sci. & Tech. Letters 731–38 (2018); Lianguo Chen et al., *Multigenerational Disruption of the Thyroid Endocrine System in Marine Medaka after a Life-Cycle Exposure to Perfluorobutanesulfonate*, 52 Env't Sci. & Tech. 4432–39 (2018); Lianguo Chen et al., *Accumulation of Perfluorobutane Sulfonate (PFBS) and Impairment of Visual Function in the Eyes of Marine Medaka After a Life-Cycle Exposure*, 201 Aquatic Toxicology 1–10 (2018); Yongbing Du et al., *Chronic Effects of Water-Borne PFOS Exposure on Growth, Survival and Hepatotoxicity in Zebrafish: A Partial Life-Cycle Test*, 74 Chemosphere 723–29 (2009); A. Hagenaars et al., *Structure-Activity Relationship Assessment of Four Perfluorinated Chemicals Using a Prolonged Zebrafish Early Life Stage Test*, 82 Chemosphere 764–72 (2011); Haihua Huang et al., *Toxicity, Uptake Kinetics and Behavior Assessment in Zebrafish Embryos Following Exposure to Perfluorooctanesulphonicacid (PFOS)*, 98 Aquatic Toxicology 139–47 (2010); Carrie E. Jantzen et al., *PFOS, PFNA, and PFOA Sub-Lethal Exposure to Embryonic Zebrafish Have Different Toxicity Profiles in terms of Morphometrics, Behavior and Gene Expression*, 175 Aquatic Toxicology 160–70 (2016); Yang Liu et al., *The Thyroid-Disrupting Effects of Long-Term Perfluorononanoate Exposure on Zebrafish (Danio rerio)*, 20 Ecotoxicology 47–55 (2011); John Charles Rotondo et al., *Environmental Doses of Perfluorooctanoic Acid Change the Expression of Genes in Target Tissues of Common Carp*, 37 Env't Toxicology & Chemistry 942–48 (2018).

[35] Gerald T. Ankley et al., *Partial Life-Cycle Toxicity and Bioconcentration Modeling of Perfluorooctanesulfonate in the Northern Leopard Frog (Rana Pipiens)*, 23 Env't Toxicology & Chemistry 2745–55 (2004); Yan Cheng et al., *Thyroid Disruption Effects of Environmental Level Perfluorooctane Sulfonates (PFOS) in Xenopus Laevis*, 20 Ecotoxicology 2069–78 (2011); Qin-Qin Lou et al., *Effects of Perfluorooctanesulfonate and Perfluorobutanesulfonate on the Growth and Sexual Development of Xenopus Laevis*, 22 Ecotoxicology 1133–44 (2013).

[36] T.C. Guillette et al., *Blood Concentrations of Per- and Polyfluoroalkyl Substances Are Associated with Autoimmune-like Effects in American Alligators from Wilmington, North Carolina*, 4 Frontiers Toxicology 01 (2022).

[37] Changhui Liu et al., *Oxidative Toxicity of Perfluorinated Chemicals in Green Mussel and Bioaccumulation Factor Dependent Quantitative Structure-Activity Relationship*, 33 Env't Toxicology & Chemistry 2323–32 (2014); Changhui Liu et al., *Immunotoxicity in Green Mussels under Perfluoroalkyl Substance (PFAS) Exposure: Reversible Response and Response Model Development*, 37 Env't Toxicology & Chemistry 1138–45 (2018).

[38] Magali Houde et al., *Endocrine-Disruption Potential of Perfluoroethylcyclohexane Sulfonate (PFECHS) in Chronically Exposed Daphnia Magna*, 218 Env't Pollution 950–56 (2016); Ruoyu Liang et al., *Effects of Perfluorooctane Sulfonate on Immobilization, Heartbeat, Reproductive and Biochemical Performance of Daphnia Magna*, 168 Chemosphere 1613–18 (2017); Kyunghee Ji et al., *Toxicity of Perfluorooctane Sulfonic Acid and Perfluorooctanoic Acid on Freshwater Macroinvertebrates (Daphnia Magna and Moina Macrocopa) and Fish (Oryzias Latipes)*, 27 Env't Toxicology & Chemistry 2159–68 (2008); Michelle M. MacDonald et al., *Toxicity of Perfluorooctane Sulfonic Acid and Perfluorooctanoic Acid to Chironomus Tentans*, 23 Env't Toxicology & Chemistry 2116–23 (2004).

[39] *See* Qaim Mehdi et al., *Occurrence and Maternal Transfer of Per- and Polyfluoroalkyl Substances (PFAS) in Pregnant Sharks from Florida Coastal Waters*, Ecotoxicology and Public Health (July 17, 2025), https://doi.org/10.1021/acs.est.5c03114.

developmental and reproductive impacts, behavioral changes, adverse effects to livers, disruption to endocrine systems, and weakened immune systems.[44] Harmful levels of PFAS have also been found in the eggs of birds of prey, including bald eagles and osprey, which prey on aquatic animals.[45]

PFAS have been found in fish tissue across all 48 continental states,[46] and PFOS—a particularly harmful PFAS compound—is one of the most prominent PFAS found in freshwater fish.[47] As a result, communities that rely heavily on subsistence fishing—many of which are low-wealth and minority communities[48]—are at higher risk of PFAS exposure and associated health effects.[49] In fact, researchers conclude that "[w]idespread PFAS contamination of freshwater fish in surface waters in the U.S. is likely a significant source of exposure to PFOS and potentially other perfluorinated compounds for all persons who consume freshwater fish, but especially for high frequency freshwater fish consumers."[50] Communities of color and low-wealth communities are also more likely to bear the burden of PFAS pollution in their rivers, creeks, streams, and drinking water.[51]

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[40] *See* Andrzej Reindl et al., *Pygoscelis penguins as indicators of perfluoroalkyl substances pollution and global health risks - case study from King George Island (Western Antarctic)*, 285 Env't Rsch. 122475 (Nov. 15, 2025), https://doi.org/10.1016/j.envres.2025.122475.

[41] *See* Oliver Salangad et al., *Occurrence and patterns of legacy and emerging per- and polyfluoroalkyl substances (PFAS) in bones of white-beaked dolphin (Lagenorhynchus albirostris) using target, suspect, and non-target screening*, 283 Env't Rsch. 122114 (Oct. 15, 2025), https://doi.org/10.1016/j.envres.2025.122114.

[42] *See, e.g.*, Melanie Lauria et al., *Discovery of Fluorotelomer Sulfones in the Blubber of Greenland Killer Whales (Orcinus orca)*, 12 Env't Sci. & Tech. Letters 9 (Aug. 13, 2025), https://doi.org/10.1021/acs.estlett.5c00516.

[43] Ling Mo et al., *Per- and polyfluoroalkyl substances in tissues of intermediate egrets (Ardea intermedia) from the South China Sea*, 220 Marine Pollution Bulletin 118376 (Nov. 2025), https://doi.org/10.1016/j.marpolbul.2025.118376.

[44] *See supra* notes 34–43; *see also* Final Recommended Aquatic Life Criteria and Benchmarks for Select PFAS, 89 Fed. Reg. 81077, 81077 (Oct. 7, 2024).

[45] Ulkrika Eriksson et al., *Comparison of PFASs Contamination in the Freshwater and Terrestrial Environments by Analysis of Eggs from Osprey (Pandolian Haliaetus), Tawny Owl (Strix Aluco), and Common Kestrel (Falco Tinnunculus)*, 149 Env't Rsch. 40–47 (2016), https://perma.cc/9KVK-9AST; Yan Wu et al., *Novel and Legacy Per- and Polyfluoroalkyl Substances in Bald Eagle Eggs from the Great Lakes Region*, 260 Env't Pollution 1 (2020), https://perma.cc/LLC4-RD3G.

[46] Nadia Barbo et al., *Locally Caught Freshwater Fish Across the United States Are Likely a Significant Source of Exposure to PFOS and Other Perfluorinated Compounds*, 220 Env't Rsch. 3 (2023), https://perma.cc/SB8F-C3Y6.

[47] *Id.* at 4.

[48] Nat'l Env't Justice Advisory Council, Fish Consumption and Environmental Justice (2002), at 2–10, https://perma.cc/PA66-ABA9.

[49] Patricia A. Fair et al., *Perfluoralkyl Substances (PFASs) in Edible Fish Species from Charleston Harbor and Tributaries, South Carolina, United States: Exposure and Risk Assessment*, 171 Env't Rsch. 266, 273–75 (2019), https://perma.cc/7976-XAVU; Chloe Johnson, *Industrial Chemicals in Charleston Harbor Taint Fish – and Those Who Eat Them*, Post & Courier (June 4, 2022), https://perma.cc/Z5TM-MB83.

[50] Barbo, *supra* note 46, at 9.

[51] *See* Jahred M. Liddie et al., *Sociodemographic Factors Are Associated with the Abundance of PFAS Sources and Detection in U.S. Community Water Systems*, 57 Env't Sci. & Tech. 7902 (2023), https://perma.cc/74YL-5EPM (discussing PFAS in drinking water sources); Susan Lee et al., Dirty Water: Toxic "Forever" PFAS Chemicals Are Prevalent in the Drinking Water of Environmental Justice Communities (Aug. 2021), at 9–13, https://perma.cc/HPM9-ULDX (explaining that PFAS drinking water contamination is high in California's disadvantaged communities); Genna Reed, *PFAS Contamination is an Equity Issue, and President Trump's EPA is Failing to Fix It*, Union Concerned Scientists (Oct. 30, 2019), https://perma.cc/9JVE-QSQ4.

PFAS also threaten food supplies for communities throughout the country. Throughout the country, farmers spread biosolids, or sludge, on their crops and pastures used for livestock. And for decades, corporations marketing sludge assured farmers that it was a safe and effective fertilizer. Now we know that much of the sludge contained high levels of PFAS, and that this route of contamination can devastate agricultural communities. 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.[52] 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.[53] In Michigan, at least one cattle farm was ordered to stop selling its beef because elevated levels of PFOS were detected in the cuts of meat sold from the farm.[54] There, once again, the cattle had likely been poisoned by consuming feed that was polluted by sludge.[55]

In 2025, EPA released a draft risk assessment measuring the harm that PFAS-laden sludge posed to farming communities.[56] EPA determined that 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.[57] For instance, EPA determined that children who live on or near crop farms (farms used to grow fruits and vegetables) have significantly higher chances of developing cancer later in life—just from eating the vegetables or drinking water on their family farm.[58] And children who live on pasture farms (farms that raise livestock) are far more likely to develop cancer from eating a *single* egg from their farm per day.[59] Drinking milk and eating beef are also linked to cancer and non-cancer health impacts.[60] Importantly, EPA only modeled levels of PFOS—not any of the other thousands of PFAS likely found on these farms—and assumed levels that are far lower than what is detected in biosolids today.[61] This means the threats to these families are likely far more severe.

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[52] 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.
[53] 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.
[54] Garret Ellison, *Advisory Warns of PFAS in Beef from Michigan Cattle Farm*, MLive (Jan. 28, 2022), https://perma.cc/2PZN-JXWT.
[55] *Id.*
[56] EPA, *Draft Sewage Sludge Risk Assessment for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS)*, 90 Fed. Reg. 3859 (Jan. 15, 2025).
[57] *Id.* at 5.
[58] *Id.* at 103 (Table 34).
[59] *Id.* at 105 (Table 36).
[60] *Id.*
[61] *Id.* at 113.

b. 1,4-Dioxane is an industrial chemical linked to cancer and other negative health impacts.

1,4-Dioxane is a clear, man-made chemical that is a byproduct of many industrial processes.[62] The chemical is toxic to humans,[63] causing liver and kidney damage at very low levels.[64] Multiple federal agencies classify 1,4-dioxane as a "likely human carcinogen," meaning that the scientific literature that currently exists provides a sufficient link between the chemical and cancer.[65] Moreover, recent federal assessments have determined that exposure to 1,4-dioxane poses an unreasonable risk to human health.[66] In its assessment, EPA determined that exposure to 1,4-dioxane causes "liver toxicity, adverse effects in the olfactory epithelium, and cancer" when people breathe, touch, ingest, or drink water laden with 1,4-dioxane.[67] Eating fish and vegetables contaminated with 1,4-dioxane could also be an exposure pathway.[68]

As a result of existing data, EPA established a drinking water health advisory with an associated lifetime cancer risk of one-in-one-million at a concentration of 0.35 parts per billion ("ppb"),[69] meaning that people who are drinking 1,4-dioxane in their water at this level have an increased chance of getting cancer. North Carolina has similarly determined that 1,4-dioxane is toxic and poses a cancer risk at levels higher than 0.35 ppb.[70]

c. North Carolina communities suffer from some of the worst PFAS and 1,4-dioxane pollution in the country.

More than half of North Carolinians drink water sourced from surface waters and rely on drinking water utilities for safe drinking water. As many as 4.8 million drink water with unsafe levels of PFAS.[71] Of the 229 public water systems reliant on surface water that have been tested

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[62] EPA, *Technical Fact Sheet – 1,4-Dioxane* (2017), at 1–2 [hereinafter EPA, 1,4-Dioxane Fact Sheet], https://perma.cc/E8XK-HYWS.

[63] *See* EPA, *Unreasonable Risk Determination for 1,4-Dioxane* (Nov. 2024), at 3 [hereinafter EPA, 1,4-Dioxane Risk Determination], https://perma.cc/5C3M-DBSK; EPA, *Integrated Risk Information System, Chemical Assessment Summary: 1,4,-Dioxane* (Aug. 11, 2010), at 2 [hereinafter EPA, 1,4-Dioxane Chemical Assessment], https://perma.cc/89PJ-UZ93 .

[64] EPA, 1,4-Dioxane Fact Sheet, *supra* note 62, at 3; EPA, 1,4-Dioxane Chemical Assessment, *supra* note 63, at 2.

[65] ATSDR, *Public Health Statement for 1,4-Dioxane*, https://perma.cc/5VHS-AQAW (last visited Apr. 16, 2026) (explaining that the EPA and the U.S. Department of Health and Human Services classify 1,4-dioxane as likely to be carcinogenic; also explaining that the International Agency for Research on Cancer has determined that 1,4-dioxane is possibly carcinogenic).

[66] *See* EPA, 1,4-Dioxane Risk Determination, *supra* note 63, at 14–18.

[67] EPA, *Final Risk Evaluation for 1,4-Dioxane*, https://perma.cc/564X-3R3X (last visited Mar. 19, 2026).

[68] *Id.*

[69] EPA, 2018 Edition of the Drinking Water Standards and Health Advisories (2018), at 4 [hereinafter EPA, Drinking Water Standards and Health Advisories], https://perma.cc/GND4-SYJA (listed as Dioxane p-, CASRN Number 123-91-1).

[70] DEQ, *1,4-Dioxane Monitoring in the Cape Fear River Basin of North Carolina: An Ongoing Screening, Source Identification, and Abatement Verification Study* (2017), at 2 [hereinafter DEQ, 2017 1,4-Dioxane Study], https://perma.cc/U6UG-4GDQ (affirming EPA's conclusions); *see also* DEQ, Surface Water Quality Standards, Criteria & In-Stream Target Values (2019), https://perma.cc/A8KV-JZZM (one-in-one million cancer risk for 1,4-dioxane is 0.35 ppb),

[71] The Southern Environmental Law Center's Senior Geospatial Analyst, Libbie Weimer, developed this statistic by synthesizing data across federal and state PFAS monitoring sources including from EPA's UCMR5, the N.C. PFAS Research Network, and N.C. DEQ and then filtered results to only include community public water systems in North Carolina where surface water or purchased surface water is the primary drinking water source. *See* Weimer, *supra* note 3.

for PFAS, 142 are impacted by PFAS pollution and at least 116, over half, have PFAS detections above EPA's drinking water standards for PFAS.[72] Even excluding detections of PFOA, PFOS, and GenX, 99 systems are impacted by other PFAS in their drinking water.[73] Additionally, more than one million people drink water laden with 1,4-dioxane.[74] A recent legislative study found that North Carolinians who drink water sourced from rivers, creeks, and streams are exposed to twice as much 1,4-dioxane pollution than the national average.[75] For those whose water comes from groundwater, the exposure could be as high as four times the national average.[76] Contamination in public drinking water threatens families, schools, restaurants, businesses, retirement homes, and other community gathering areas—all of which depend on clean water for those they love and serve.

High levels of PFAS have also been detected in the fish commonly eaten in North Carolina. In 2023, North Carolina joined 14 other states in issuing fish consumption advisories for PFAS "based on concerns about exposure to [PFOS] found in fish sampled" in the middle and lower Cape Fear River.[77] The advisories recommend that women of childbearing age, pregnant women, nursing mothers, and children do not eat certain fish from that stretch of the river, while limiting consumption of other fish to "[n]o more than 1 meal per year."[78] For all other North Carolinians, the advisories recommend limiting consumption to one or seven meals per year, depending on the species.[79]

Cape Fear River Fish Consumption Advisories		
Freshwater Fish Species	*Advisory for women of childbearing age (15-44 years), pregnant women, nursing mothers, and children*	*Advisory for all other adults*
American Shad, Blue Catfish, Channel Catfish	**No more than 1 meal per year**, combined across all species.	**No more than 7 meals per year**, combined across all species.
Bluegill, Flathead Catfish, Largemouth Bass, Striped Bass, Redear	**Do not eat**.	**No more than 1 meal per year**, combined across all species.

North Carolina's Department of Health and Human Services is currently studying the presence of PFAS in saltwater fish in the Cape Fear River region. While the research is ongoing,

[72] *Id.*
[73] *Id.*
[74] *See* DEQ, 1,4-Dioxane in Drinking Water Legislative Report, *supra* note 4, at 7–8, McCloskey, *A Closer Look at PFAS Drinking Water Regulations*, *supra* note 4.
[75] DEQ, 1,4-Dioxane in Drinking Water Legislative Report, *supra* note 4, at 1.
[76] *Id.* at 17–18.
[77] DHHS, Fish Consumption Advisory, *supra* note 5.
[78] *Id.*
[79] *Id.*

elevated levels of PFAS, particularly PFOS, have been detected in saltwater species including Atlantic Croaker, Red Drum, and Sheepshead.[80] Other wildlife in North Carolina face harmful threats from ongoing PFAS pollution. For example, PFAS have been detected in elevated concentrations in the specific population of American alligators living in the Cape Fear River basin, resulting in harmful conditions resembling autoimmune diseases in the alligators.[81] Both legacy and novel PFAS have been detected in seabirds along the Cape Fear River, and researchers indicated that PFAS exposure could be negatively impacting the birds' liver functions.[82] PFAS have also been detected in horses, dogs, and seabirds along the Cape Fear River.[83]

d. PFAS and 1,4-dioxane pollution in North Carolina comes from industry and wastewater treatment plants that accept industrial waste.

Pollution in our drinking water and food supplies comes from industrial facilities and municipal wastewater plants that accept industrial waste. Across the state, more than 500 industries are known or suspected to dump PFAS into our rivers or wastewater plants.[84] And at least 113 wastewater treatment plants are known or suspected to accept PFAS-laden industrial waste, thereby becoming a source themselves.[85] Additionally, 155 industries, 34 significant industrial users (industries that dump wastewater into wastewater plants), and 75 wastewater treatment plants are known or suspected sources of 1,4-dioxane.[86] Contrary to assertions made by the regulated community,[87] this is where the bulk of the toxic chemical contamination originates—not utilities only treating household waste.

In 2025, the Department concluded that wastewater plants receiving domestic-only waste "had consistently lower PFAS" entering and exiting the plant than wastewater plants that receive industrial waste.[88] Whereas domestic-only plants had total PFAS influent levels reaching 112 ppt, influent from industrially impacted plants reached as high as 4,124 ppt—nearly 37 times the level of domestic-only plants.[89] The Department's study is consistent with data at the national

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[80] DEQ Water and Fish Study Presentation: Saltwater Samples, *supra* note 5.
[81] Guillette et al., *supra* note 36, at 01.
[82] Anna Robuck et al., *Legacy and Novel Per- and Polyfluoroalkyl Substances in Juvenile Seabirds from the U.S. Atlantic Coast*, 54 Env't Sci. & Tech. 12938 (2020), https://pubs.acs.org/doi/10.1021/acs.est.0c01951.
[83] *Id.*; Kylie D. Rock et al., *Domestic Dogs and Horses as Sentinels of Per- and Polyfluoroalkyl Substance Exposure and Associated Health Biomarkers in Gray's Creek North Carolina*, 57 Env't Sci. & Tech. 9567-9579 (July 4, 2023), https://pubmed.ncbi.nlm.nih.gov/37340551/; Jacqueline Bangma et al., *Combined Screening and Retroactive Data Mining for Emerging Perfluoroethers in Wildlife and Pets in the Cape Fear Region of North Carolina*, 363 Chemosphere 142898 (Sept. 2024), https://www.sciencedirect.com/science/article/abs/pii/S0045653524017922?via%3Dihub. .
[84] DEQ, PFAS Standards Fiscal Note, *supra* note 8, at 26.
[85] *Id.*
[86] N.C. EMC, Fiscal Note for Proposed Adoption of 15A NCAC 02B.01513 and 02H.0924 (Sept. 3, 2025), at 8–9, https://perma.cc/4TCK-3THF.
[87] *See* Email from Paul Calamita, Aqua Law, to Julie Grzyb, N.C. DEQ (Dec. 29, 2024), https://perma.cc/9LJA-4F3Q.
[88] N.C. DEQ, Biosolids Study: EMC Summary (Nov. 13, 2025), at slides 6–7, https://perma.cc/T8J5-WENW [hereinafter DEQ, Biosolids Study Presentation].
[89] DEQ, Biosolids Study Presentation, *supra* note 88, at slide 6.

and international level—wastewater plants that receive industrial waste have far higher levels of PFAS than those who only receive domestic waste.[90]

Recent research from Duke University further affirms this conclusion. As part of a settlement agreement between Haw River Assembly and the city of Burlington, Duke analyzed PFAS levels flowing into the city's wastewater treatment plant from several industries to identify the source of Burlington's PFAS pollution.[91] Burlington's pollution was significant: the city's wastewater discharges reached 33,000 ppt.[92] Downstream, Pittsboro's drinking water reached 850 ppt.[93] And the drinking water supply for Chapel Hill had PFAS levels as high as 2,000 ppt due to the spraying of contaminated sludge from Burlington's plant.[94] Using a broad analytical method that would more accurately identify total PFAS levels, Duke was able to pinpoint the source of PFAS: an industrial textile facility releasing levels at 1,370,000 ppt.[95] Ultimately, after looking at all sources flowing into Burlington's wastewater plant, the researchers confirmed that industrial sources of PFAS "far outweigh[] domestic contributions."[96]

Despite the data and despite the harm that North Carolina communities have suffered for years (if not decades), the EMC has refused to adopt rules that would actually limit pollution from industries and wastewater plants. Instead, the commission has pursued a toothless polluter-friendly approach that allows *unlimited* amounts of PFAS and 1,4-dioxane to continue to be dumped into our rivers, creeks, and streams.

III. The polluter-written rules will not protect North Carolinians.

The EMC calls these "monitoring and minimization" rules, but they do no such thing. They require monitoring and *planning*—***not minimization***—and, worse yet, they allow continued releases of toxic chemicals. Existing research shows that regulating toxic chemicals leads to dramatic reductions in exposure.[97] But nothing like that will occur in North Carolina

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[90] *See, e.g.* 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.

[91] 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://pubs.acs.org/doi/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://burlingtonnc.gov/DocumentCenter/View/18963/2020-10-22-Burlington-HRA-MOA-signed?bidId=; Settlement Agreement Between City of Burlington, North Carolina and Haw River Assembly (Aug. 1, 2023), at 2–3 https://www.selc.org/wp-content/uploads/2023/08/2023.08.01-Final-Settlement-Agreement-with-Burlington-re-PFAS-attachments-002.pdf.

[92] Duke, Burlington Study, *supra* note 206, at C.

[93] *Id.*

[94] *Id.* at D.

[95] *Id.*

[96] *Id.* at A.

[97] Ruonan Li et al., *Regulatory Successes and Lingering Threats: A Decade of Prenatal PFAS Exposure Trends and Risk Transitions in an Urban City in China*, 382 Env't Pollution 126760 (Oct. 1, 2025), https://www.sciencedirect.com/science/article/abs/pii/S0269749125011339 (following regulatory actions to reduce PFAS pollution in Shanghai, China, concentrations of legacy and replacement PFAS in maternal plasma declined significantly).

under the proposed rules. The EMC itself has acknowledged that the proposal is "not a treatment rule," and that the Commission did not intend to get "into the reduction business" here.[98]

Under the proposed framework, dischargers are given nearly a year and a half (17 months) to collect a handful of water quality samples,[99] followed by nearly three years (33 months) to write a plan on how pollution *might* be reduced.[100] Dischargers are then granted at least eight additional months before taking any action at all.[101] Still then, it could be months or nearly a year before the public accesses any of the data or the information in a polluter's plan because most dischargers only have to submit information as part of the annual pretreatment reporting process once a year.[102] Even after this protracted delay, there are no consequences or penalties if the plan fails to cut pollution—even if the polluter ***increases*** its toxic discharges.[103] While the plans might eventually be folded into permits, they remain meaningless because the plans themselves are unenforceable.[104]

Not surprisingly, when reviewing the rules, the Office of State Budget and Management emphasized that "there is *considerable uncertainty*" about how dischargers will respond to the proposed rules and "the magnitude of potential benefits is even more uncertain."[105]

a. The proposed rules will delay protections for communities downstream.

The proposed rules are unnecessary and will significantly delay protections for North Carolina families. The Department already has the authority to require dischargers to monitor and control PFAS and 1,4-dioxane pollution.[106] Similar authority exists for wastewater plants to

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[98] N.C. EMC, EMC Water Quality Committee Meeting, YouTube (Mar. 12, 2025), at 34:03 and 1:08:49, https://www.youtube.com/watch?v=Z7KhUJgY4eE&list=PLsBpAjvXXIH0ZhXbYwoq4-yn6wcGGt--s&index=17&t=4230s [hereinafter March EMC WQC Meeting Recording].

[99] 15A N.C. Admin. Code 02B .0513(d) (1,4-dioxane direct dischargers); 15A N.C. Admin. Code 02B .0512 (d) (PFAS direct dischargers); 15A N.C. Admin. Code 02H .0924(d) (1,4-dioxane SIUs); 15A N.C. Admin. Code 02H .0923(d) (PFAS SIUs).

[100] 15A N.C. Admin. Code 02B .0513(e),(f) (1,4-dioxane direct dischargers); 15A N.C. Admin. Code 02B .0512 (e),(f) (PFAS direct dischargers); 15A N.C. Admin. Code 02H .0924(e),(f) (1,4-dioxane SIUs); 15A N.C. Admin. Code 02H .0923(e),(f) (PFAS SIUs).

[101] 15A N.C. Admin. Code 02B .0513(f)(4) (1,4-dioxane direct dischargers); 15A N.C. Admin. Code 02B .0512 (f)(4) (PFAS direct dischargers); 15A N.C. Admin. Code 02H .0924(f)(4) (1,4-dioxane SIUs); 15A N.C. Admin. Code 02H .0923(f)(4) (PFAS SIUs).

[102] 15A N.C. Admin. Code 02H .0924(h) (1,4-dioxane SIUs); 15A N.C. Admin. Code 02H .0923(h) (PFAS SIUs).

[103] *See* 15A N.C. Admin. Code 02H .0923(f)(5) (explaining that significant industrial users must merely document increases in PFOA, PFOS, or GenX); 15A N.C. Admin. Code 02B .0512(f)(5) (same for direct dischargers); 15A N.C. Admin. Code 02H .0924(f)(5) (explaining that significant industrial users must merely document increases in 1,4-dioxane); 15A N.C. Admin. Code 2B .0513(f)(5) (same for direct dischargers).

[104] *See* 15A N.C. Admin. Code 02B .0512(f)(4); 15A N.C. Admin. Code 02B .0513(f)(4); *contra* N.C. EMC, November 2025 EMC WQC Meeting, YouTube, at 39:21–40:00, https://www.youtube.com/watch?v=ZTxrx6UnAGc (discussion by EMC counsel regarding efficacy of the rules).

[105] Memorandum from Ed McLenaghan, N.C. OSBM, to Sushma Masemore, N.C. DEQ re *Proposed Rules and Fiscal Note for PFOA, PFOS, and Gen X Monitoring and Minimization* (June 27, 2025), at 1, https://perma.cc/3LU2-L7DV; Memorandum from Ed McLenaghan, N.C. OSBM, to Sushma Masemore, N.C. DEQ re *Proposed Rules and Fiscal Note for 1,4-Dioxane Monitoring and Minimization* (Sept. 3, 2025), at 1, https://perma.cc/66P9-3P9N.

[106] *See, e.g.*, N.C. Gen. Stat. § 143-215.1(b)(4); 15A N.C. Admin. Code 02H .0112(b)(1); 15A N.C. Admin. Code 02H .0117(a), (c); *see also* Memorandum from Radhika Fox, U.S. EPA, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), at 2–5,

control pollution coming from theirs industrial users.[107] In addition, the Clean Water Act already requires dischargers to disclose all pollutants in their wastewater, including PFAS and 1,4-dioxane.[108] Given this existing authority, the Department does not need to promulgate additional rules in order to monitor and control PFAS and 1,4-dioxane.

The regulated community has argued that the Department doesn't have the authority to require monitoring or toxic chemical reductions after the North Carolina Supreme Court decision *N.C. Department of Environmental Quality v. N.C. Farm Bureau*.[109] This is not true. In that case, the Court invalidated three provisions in the swine, poultry, and cattle waste management system general Clean Water Act permit[110]—holding narrowly that those specific conditions were rules of general applicability and should have first gone through rulemaking.[111] Here, the Department's authority is based on rules that have already gone through rulemaking and thus *N.C. Farm Bureau* is beside the point.

Given the already existing authority, these rules will inevitably slow down the Department's progress on addressing PFAS and 1,4-dioxane. The Department already (lawfully) requires multiple cities and industries to monitor these chemicals—and to do so far more comprehensively than these rules require. The current monitoring is more frequent,[112] and it

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https://perma.cc/8YUE-BLU4 (explaining that state agencies can and should implement monitoring requirements, source reduction elements, and permit limits to address PFAS pollution from wastewater plants and industries).

[107] *See, e.g.*, 40 C.F.R. § 403.8(f) (listing authority to deny, condition, or approve discharges to the wastewater utility as well as listing authority for sampling, investigating, and identifying sources of pollution discharged to the wastewater utility); 40 C.F.R. § 403.5(d) (explaining local limits and their enforcement as pretreatment standards); 15A N.C. Admin. Code 02H .0904 (providing the authority and obligations listed in federal pretreatment regulations); 15A N.C. Admin. Code 02H .0905(b) (explaining authority in the pretreatment program including "implementation of compliance activities" like sampling, and updating the sewer use ordinance). Municipal wastewater plants additionally have sewer use ordinances that give the utility authority to control what pollutants, if any, are allowed to be introduced to the wastewater system.

[108] *Piney Run Pres. Ass'n v. Cnty. Comm'rs of Carroll Cnty.*, 268 F.3d 255, 268 (4th Cir. 2001); *S. Appalachian Mountain Stewards v. A & G Coal Corp.*, 758 F.3d 560, 564–65 (4th Cir. 2014); 15A N.C. Admin. Code 02H .0105(j); *see also* N.C. DEQ, *NPDES Individual Permit Applications*, https://www.deq.nc.gov/about/divisions/water-resources/water-quality-permitting/npdes-wastewater/npdes-permitting-process/npdes-individual-permit-applications (last visited Dec. 9, 2025)

[109] Letter from Paul Calamita, Counsel for N.C. Water Quality Association (Jan. 4, 2026), at 2, https://perma.cc/773D-X47V; *N.C. Dep't of Env't Quality v. N.C. Farm Bureau Fed'n*, 388 N.C. 366, 921 S.E.2d 121 (2025).

[110] General permits cover multiple dischargers within a certain industry category who, based on the state agency's professional experience or legislative order, have similar operations and pollution discharges. Individual permits are issued on a case-by-case basis to a specific discharger and will control the pollutants identified by that discharger in an individually tailored application. *See NPDES Permit Basics*, U.S. EPA, https://www.epa.gov/npdes/npdes-permit-basics#:~:text=A%20National%20Pollutant%20Discharge%20Elimination,take%20six%20months%20or%20longer

[111] *N.C. Farm Bureau*, 388 N.C. at 379.

[112] For example, most, if not all, permittees known or likely to discharge 1,4-dioxane monitor and report 1,4-dioxane levels on a weekly or monthly basis—far more frequently than the rules anticipate. *See, e.g.*, City of Greensboro, Discharge Monitoring Report NC0047384 (Apr. 2026) (weekly 1,4-dioxane reporting); City of Asheboro, Discharge Monitoring Report NC0026123 (Apr. 2026) (weekly 1,4-dioxane reporting); City of Reidsville, Discharge Monitoring Report NC0024881 (Apr. 2026) (weekly 1,4-dioxane reporting); City of High Point, Discharge Monitoring Report NC0024210 (Apr. 2026) (bi-monthly 1,4-dioxane reporting); City of Burlington – Eastside, Discharge Monitoring Report NC0023868 (Apr. 2026) (monthly 1,4-dioxane reporting); City of Burlington – Southside, Discharge Monitoring Report NC0023876 (Apr. 2026) (more than weekly 1,4-dioxane reporting); City of Sanford, Discharge Monitoring Report NC0024147 (Apr. 2026) (monthly 1,4-dioxane reporting); Alpek Polyester, Discharge Monitoring Report NC0003719 (Apr. 2026) (monthly 1,4-dioxane reporting); Brenntag/Greensboro

covers far more compounds than the three included in the proposed PFAS rules.[113] The Department has also included permit requirements for certain wastewater plants to study and take actions to control their industrial users that send PFAS to the wastewater utility. Wastewater plants like Charlotte Water's McAlpine Creek facility and City of Winston-Salem's Archie Elledge facility have identified sources and begun to take some actions to update their industrial user permits accordingly.[114]

Moreover, the Department already possesses much of the data that the rules seek to collect. The Department has been collecting data on 1,4-dioxane sources since at least 2014 and on PFAS sources since at least 2018.[115] Gathering that information has allowed the Department

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Remediation, Discharge Monitoring Report NC0078000 (Apr. 2026) (monthly 1,4-dioxane reporting); City of Lumberton, Discharge Monitoring Report NC0024571 (Apr. 2026) (monthly 1,4-dioxane reporting); McAlpine Creek WWMF, Discharge Monitoring Report NC0024970 (Apr. 2026) (monthly 1,4-dioxane reporting).

And many wastewater plants have quarterly monitoring requirements for PFAS. *See, e.g.*, DEQ, Final NPDES Permit Renewal Permit NC0020338, Yadkinville WWTP (Apr. 22, 2025) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020427, Rockingham WWTP (Apr. 2, 2025) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020591, Third Creek WWTP (Dec. 5, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020605, Tarboro WWTP (Apr. 15, 2025) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020664, Spindale WWTP (Jan. 8, 2025) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020737, Pilot Creek WWTP (Apr. 16, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0021121, Mount Airy WWTP (Jan. 8, 2025) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0021156, Mount Holly WWTP (Apr. 9, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0021181, Belmont WWTP (Oct. 11, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0021717, Wilkesboro WWTP (May 6, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0023841, North Durham WRF (May 6, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0023949, Goldsboro WRF (June 17, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024538, First Broad River WWTP (Oct. 29, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024571, Lumberton WWTP (Dec. 4, 2023) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024911, French Broad River WWTP (Mar. 15, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024937, Charlotte-Sugar Creek WRRF (Jan. 30, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024945, Charlotte-Irwin Creek WRRF (Mar. 15, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024970, Charlotte-McAlpine Creek WWMF (Oct. 27, 2023) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0025534, Hendersonville WWTP (Aug. 21, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0026646, Pilot Mountain WWTP (Apr. 24, 2025) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0030210, Mallard Creek WRRF (Nov. 20, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0030716, Central Johnston County WWTP & 210 WWTF (Sept. 5, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0037834, Archie Elledge WWTP (Mar. 11, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0043176, Black River WWTP (Feb. 1, 2024) (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0089630, Joe C. Stowe Jr. Regional WRRF (Jan. 10, 2025) (quarterly PFAS monitoring).

[113] *See e.g.*, N.C. DEQ, Final NPDES Permit Renewal Permit NC0024970, McAlpine Creek WWTP, at 12 (requiring monitoring for "all target analytes" under draft analytical method 1633, which includes 40 different PFAS). The additional permits cited in note 112 contain similar or identical requirements.

[114] *See, e.g.*, Lettter from Bill Gintert, Charlotte Water, to Michael Montebello, N.C. DEQ (June 21, 2024), https://edocs.deq.nc.gov/WaterResources/DocView.aspx?id=3357008&dbid=0&repo=WaterResources.

[115] *See, e.g.*, N.C. DEQ, 1,4-Dioxane in the Cape Fear River Basin of North Carolina: An Initial Screening and Source Identification Study (Jan. 25, 2016), at 2–3, https://perma.cc/G6YG-VC4N [hereinafter DEQ, 2016 1,4-Dioxane Study]; N.C. DEQ, Cape Fear River Basin WWTP PFAS and 1,4-Dioxane Sampling (2019), https://perma.cc/6MGQ-DM9J; N.C. DEQ, Cape Fear River Basin Industrial PFAS and 1,4-Dioxane Sampling

to identify the known and likely sources of toxic chemical pollution across our state.[116] For example, in 2015 the Department identified leading sources of 1,4-dioxane as the wastewater plants in Asheboro, Greensboro, and Reidsville.[117] And earlier this year, the Department released influent, effluent, and biosolids data from different wastewater utilities,[118] identifying several sources of PFAS pollution.

After nearly a decade of studying this pollution, now is not the time to spend years longer on sampling and planning. But that is exactly what will happen under these rules. They will take us back to square one and it will be years before communities see any relief—if at all. Beyond the delay, the rules could create serious roadblocks for the Department and citizens to enforce existing rules designed to protect water quality. Polluters are quick to invoke rules like these as a defense to any effort to control their ongoing pollution.[119] Industry and wastewater utilities will treat these rules as a ceiling and will argue that neither the Department nor anyone else can require them to do more than monitor and put together empty plans, even when the Clean Water Act and North Carolina law demand more. The rules are not an interim step towards controlling toxic chemicals. They set North Carolina back nearly a decade.

b. The proposed rules ask North Carolinians to trust that industry will do the right thing, despite years of industry demonstrating otherwise.

As discussed above, there is nothing in the rules that requires industry or wastewater plants to reduce even one drop of PFAS or 1,4-dioxane pollution. Instead, industry must merely prepare a plan for how it might reduce toxic chemical pollution. The Department and wastewater utilities are tasked with approving these plans for direct dischargers and significant industrial users, respectively. But the rules do not define "minimization," do not impose standards to shape

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(2020), https://perma.cc/9GEN-KDRA; N.C. DEQ, Draft Cape Fear River Basin Plan, Chapter 13: 1,4-Dioxane in Cape Fear River Basin (2026), at 7–25, https://perma.cc/UFN8-QRK2 [hereinafter Draft Cape Fear River Basin Plan Ch. 13: 1,4-Dioxane]; N.C. DEQ, Draft Cape Fear River Basin Plan, Chapter 12: PFAS Related Emerging Contaminants in Cape Fear River Basin (2026), at 32–95, https://perma.cc/V9Q6-ZNZ5; *Surface Water Sampling for Emerging Compounds*, N.C. DEQ, https://ncdenr.maps.arcgis.com/apps/dashboards/d20ef253863b432db0aceaa510d7feda (last visited Dec. 8, 2025); *Emerging Compound Facility Sampling*, N.C. DEQ, https://ncdenr.maps.arcgis.com/apps/instant/attachmentviewer/index.html?appid=ed308373c97e4a23a29210fa53a3d404 (last visited Dec. 8, 2025); N.C. DEQ, Identification of Select Emerging Compounds in Public Water Supply Reservoirs in the Cape Fear, New and Watauga River Basins (Apr. 1, 2019), https://www.deq.nc.gov/documents/files/ec/identification-select-emerging-compounds-public-water/download; *see also Managing Emerging Compounds in Water*, N.C. DEQ, https://www.deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water (last visited Dec. 8, 2025).

[116] *See Cape Fear River Basin 1,4-Dioxane Wastewater Discharge Data*, N.C. DEQ, https://www.deq.nc.gov/cape-fear-river-basin-14-dioxane-wastewater-discharge-data (last visited Dec. 8, 2025); *Emerging Compound Facility Sampling*, *supra* note 115; Cape Fear River Basin WWTP PFAS and 1,4-Dioxane Sampling, *supra* note 115; Cape Fear River Basin Industrial PFAS and 1,4-Dioxane Sampling, *supra* note 115.

[117] DEQ, 2016 1,4-Dioxane Study, *supra* note 115, at 1, 9–10; N.C. DEQ, 1,4-Dioxane Monitoring in the Cape Fear River Basin of North Carolina (Feb. 22, 2017), at 11–12, https://perma.cc/L5QP-SUHW, *see also* Chad Ham et al., Concerns Regarding 1,4-Dioxane in The Water & Wastewater Industry (Dec. 11, 2015), at slide 12–13, https://perma.cc/HU3E-XNYR.

[118] N.C. DEQ, *DEQ Study: PFAS in Wastewater and Biosolids*, https://www.deq.nc.gov/deq-study-pfas-wastewater-and-biosolids (last visited Apr. 23, 2026); N.C. DEQ, Biosolids Study: EMC Summary (Nov. 13, 2025), https://perma.cc/T8J5-WENW.

[119] *See, e.g.*, Memorandum in Support of Motion to Dismiss, *Winyah Rivers Alliance v. Active Energy Renewable Power, LLC*, 7:21-CV-00043-D (June 28, 2022), at 26–30, https://perma.cc/UJG9-AZUL.

the contents of the plans, do not offer guidance to wastewater plants or the agency on how to evaluate them, and do not prevent inadequate plans from being rubber-stamped. This means that the Department and wastewater utilities can easily approve deficient plans without any oversight or consequences. While the Department has said it intends to "have workshops and provide guidelines to the [wastewater plants]," the agency also acknowledged that the proposed rules do not require wastewater plants to implement any of the agency's recommendations.[120]

In short, the proposed rules ask every North Carolinian to simply trust that industries and wastewater plants will voluntarily disclose and reduce their toxic PFAS and 1,4-dioxane pollution. The past decade has proven that it will not happen. For example, in 2006, EPA asked companies, including E.I. du Pont de Nemours and Company ("DuPont"), to voluntarily phase out their use of PFOA, and gave the companies nearly a decade to do so.[121] DuPont and Chemours Company FC, LLC ("Chemours"), then took advantage of the lack of specific regulation for PFOA and simply shifted to using a structurally similar PFAS: GenX. It was with GenX (and many other PFAS chemicals generated in the process of manufacturing GenX) that DuPont and Chemours silently contaminated the air, soil, and drinking water supply for 500,000 unsuspecting people in eastern North Carolina.[122] North Carolina only learned about Chemours' GenX pollution after several scientists collected data near and downstream of the facility.[123] Chemours had not told the state about its GenX pollution.[124] And only in the last several years, after decades of contamination, did we learn that even in small doses, GenX can present the same serious health risks as other more well-studied PFAS, including harm to prenatal development, the immune system, and liver, kidney, and thyroid functions.[125] North Carolina's recent history with Chemours teaches us multiple things, most relevantly here that industry *does not voluntarily* disclose or reduce their pollution.

Chemours is not the only one. In Duplin County, a textile manufacturer named Lear Corporation continues to dump high levels of PFAS into the Northeast Cape Fear River, upstream of popular fishing and swimming areas. Between 2019 and 2021, Lear submitted

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[120] N.C. EMC, NC Environmental Management Commission Full Meeting, YouTube (Jan. 8, 2026), at 1:46:59, https://www.youtube.com/watch?v=I3u7SaVOw-A&list=PLsBpAjvXXIH1QPqkaWPGjkUv_-2T5xAZx&index=7 [hereinafter January Full EMC Meeting Recording].

[121] Fact Sheet: 2010/2015 PFOA Stewardship Program, EPA, https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/fact-sheet-20102015-pfoa-stewardship-program (last visited July 24, 2023).

[122] *See, e.g.*, Jessica Cannon, Letter to the Editor, *Feedback on Election Districts Likely Not Heard*, StarNews Online (Aug. 27, 2017), https://www.starnewsonline.com/story/opinion/letters/2017/08/27/letters-aug-27-feedback-on-election-districts-likely-not-heard/19146328007/ (quoting citizen concerns and shock regarding the GenX crisis); *see also* Cape Fear Public Utility Authority, 2022 Annual Report (2022), *available at* https://perma.cc/KY3P-59F2 [hereinafter "CFPUA, 2022 Annual Report"] (explaining the utility serves 200,000 people); *Frequently Asked Questions: Water Treatment Upgrades and Rates*, Brunswick County N.C., https://perma.cc/U6GQ-2KJN (page saved Mar. 13, 2023) [hereinafter "Brunswick County, FAQs"] (explaining the utility serves over 300,000 people).

[123] *See* Vaughn Hagerty, *Toxin Taints CFPUA Drinking Water*, StarNews Online (June 7, 2017), https://www.starnewsonline.com/story/news/environment/2017/06/07/toxin-taints-cfpua-drinking-water/20684831007/.

[124] Amended Complaint, *North Carolina v. The Chemours Company FC, LLC*, 17 CVS 580 (Bladen County, Super. Ct., Apr. 9, 2018), at ¶¶ 75, 156.

[125] EPA, Human Health Toxicity Values for Hexafluoropropylene Oxide (HFPO) Dimer Acid and Its Ammonium Salt (CASRN 13252-13-6 and CASRN 62037-80-3): Also Known as "GenX Chemicals" (Oct. 2021), https://perma.cc/34JJ-GED3; EPA, Drinking Water Health Advisory: Hexafluoropropylene Oxide (HFPO) Dimer Acid (CASRN 13252-13-6) and HFPO Dimer Acid Ammonium Salt (CASRN 62037-80-3), Also Known as "GenX Chemicals" (June 2022), https://perma.cc/MFF4-R2DP.

analytical data to the Department establishing that the company discharges PFAS at concentrations exceeding 1,800 ppt.[126] In 2024, after intense public scrutiny, Lear told the Department it intended to eliminate its use of PFAS by early 2025.[127] But data from the company's wastewater discharge continues to show elevated levels of total PFAS flowing from the facility.[128] Concentrations in November and December 2025 reached 1,047.66 ppt and 722.76 ppt, respectively.[129] Far from voluntarily reducing its pollution, Lear continues to discharge high levels of toxic PFAS.

Sources of 1,4-dioxane are similarly refusing to reduce their toxic pollution. In the upper portion of the Cape Fear River Basin, the city of Asheboro operates a wastewater treatment plant that receives wastewater from several industries, two of which are significant sources of 1,4-dioxane. Despite knowing that these industrial users have sent 1,4-dioxane to the wastewater plant for more than five years,[130] the city has failed to use its authority require the industrial users control or remove their 1,4-dioxane to levels needed to protect downstream drinking water supplies.[131] Rather than eliminating its toxic chemical pollution, Asheboro has actually given its industries permission to turn off treatment systems,[132] allowing 1,4-dioxane pollution to *increase* to the highest levels ever documented from a wastewater plant in North Carolina.[133]

Chemours, Lear, and Asheboro are not alone. Across the state there are at least 55 examples of polluters failing to voluntarily eliminate their PFAS and 1,4-dioxane pollution.[134] Others have been touted by the regulated community as making "voluntary" reductions,[135] but those actions were not, in fact, voluntary. The city of Burlington, for example, reduced the PFAS in its wastewater plant system pursuant to a signed settlement agreement after the Southern

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[126] N.C. DEQ, Cape Fear Industrial PFAS & 1,4-Dioxane Sampling, at 8 (2020), https://perma.cc/LSQ7-UQAC; *see also* Enthalpy Analytical, Analytical Report 1220-713, at 3–6 (Dec. 23, 2020); Enthalpy Analytical, Analytical Report 0121-730, at 3–6 (Jan. 27, 2021); Enthalpy Analytical, Analytical Report 0221-717, at 3–6 (Feb. 24, 2021); Enthalpy Analytical, Analytical Report 0321-744, at 3–6 (Mar. 29, 2021); Enthalpy Analytical, Analytical Report 0421-749 (Mar. 23, 2021), at 3–6; Enthalpy Analytical, Analytical Report 0621-729, at 3–6 (June 24, 2021); Enthalpy Analytical, Analytical Report 0621-726, at 3–6 (June 23, 2021) (collectively referred to as Dec. 2020-June 21 PFAS Sampling), https://perma.cc/AJJ2-GZJJ.

[127] *See* Email from Gianna Cooley, WSP U.S. Env't & Infrastructure, to Douglas Dowden, N.C. DEQ (Sept. 16, 2024), https://perma.cc/G9LQ-GV2X.

[128] Lear Corp., PFAS Results NC0002305 (May 2, 2026), https://perma.cc/3Y6E-KU8E.

[129] *Id.*

[130] *See, e.g.*, City of Asheboro, *Pineview Effluent Results Table* (2024), https://perma.cc/5997-MKX3; City of Asheboro, *Summary Table of Great Oak Landfill 1,4-Dioxane Sampling Data* (Apr. 2021–Aug. 2022), https://perma.cc/UEN6-SHFW.

[131] Draft Cape Fear River Basin Plan Ch. 13: 1,4-Dioxane, *supra* note 115, at 33.

[132] Email from Mark Pederson, StarPet, to Sarah Laughlin, City of Asheboro (Oct. 14, 2024), https://perma.cc/F5HF-TLSX; Email from Mark Pederson, StarPet, to Sarah Laughlin, City of Asheboro (Dec. 2, 2024), https://perma.cc/LEN7-Q7G5; Email from Mark Pederson, StarPet, to Sarah Laughlin, City of Asheboro (Jan. 16, 2025), https://perma.cc/G8XC-CANG; Email from Mark Pederson, StarPet, to Sarah Laughlin, City of Asheboro (Dec. 19, 2024), https://perma.cc/3YZN-47HW.

[133] City of Asheboro WWTP, Discharge Monitoring Report (Jan. 2025), https://perma.cc/WBN9-8MTP (reporting 1,4-dioxane levels at 3,520 ppb).

[134] DEQ, PFAS Standards Fiscal Note, *supra* note 8, at 29.

[135] Letter from Paul Calamita, *supra* note 109, at 2.

Environmental Law Center, representing Haw River Assembly, threatened to sue the city for Clean Water Act violations.[136] Acting under the threat of a federal lawsuit is not voluntary.

Similarly, the city of Greensboro reduced 1,4-dioxane in its wastewater plant system pursuant to a signed settlement agreement between the city, the Environmental Management Commission, and Haw River Assembly.[137] That settlement agreement was reached after a series of enforcement actions were taken against the city. First, the Department issued Greensboro a notice of violation for the discharge of 1,4-dioxane into the Haw River at levels that exceeded 950 ppb.[138] Second, under the pressure of the notice of violation, the city and the Department entered into a Special Order by Consent that was approved by the EMC.[139] Third, the Southern Environmental Law Center filed a lawsuit on behalf of Haw River Assembly challenging the Special Order by Consent because the final order did not have any requirements mandating that Greensboro control its industrial users.[140] It was only after Greensboro began implementing the settlement agreement that arose from Haw River Assembly's lawsuit that the city collected data and controlled its industrial users. Here, as with Burlington, Greensboro acted under regulatory enforcement and litigation—not on its own goodwill.

IV. The proposed rules put the burden of toxic chemical pollution on communities downstream.

Failing to require industries and wastewater plants to control their PFAS and 1,4-dioxane pollution has serious consequences for these communities and the drinking water utilities that serve them. As the former Department Secretary Elizabeth Biser said, without strong rules making industry pay to remove PFAS at the source, "the entire burden" of removing industrial chemicals falls on public water system customers.[141]

The price tag for North Carolina communities is significant. The Department has calculated that continued PFAS pollution will cost downstream drinking water utilities more than $430 million in treatment technology expenses[142]—a cost that utilities must bear to comply with federal drinking water standards if upstream pollution is not controlled.[143] Like PFAS, it is exceedingly expensive to remove 1,4-dioxane from downstream drinking water. For drinking

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[136] *See* Memorandum of Agreement Between City of Burlington, North Carolina and Haw River Assembly, *supra* note 91; *see also* Notice of Intent to Sue the City of Burlington for Violations of the Clean Water Act and Resource Conservation and Recovery Act (Nov. 7, 2019), https://legacy.uploads.southernenvironment.org/words_docs/2019_11_07_-Notice_of_Intent_-_City_of_Burlington_.pdf.

[137] Settlement Agreement, *Haw River Assembly v. N.C. Environmental Management Commission and City of Greensboro*, 21 EHR 01770 (Nov. 22, 2021), https://perma.cc/7NHF-D6SG.

[138] N.C. DEQ, Notice of Violation (NOV-2019-PC-0728) & Intent to Assess Civil Penalties (Nov. 14, 2019), https://perma.cc/Y69A-TCE6.

[139] N.C. EMC, Special Order by Consent: EMC-SOC-WQ-S19-010 (Feb. 24, 2021), https://perma.cc/6PV8-NCPZ.

[140] Petition for a Contested Case Hearing, *Haw River Assembly v. North Carolina Environmental Management Commission* (Apr. 9, 2021), https://perma.cc/MAV3-M3CQ.

[141] Letter from Elizabeth Biser, N.C. DEQ, to Gary Salamido, N.C. Chamber of Com. (May 1, 2024), https://perma.cc/EQF4-7L4T; *see also* N.C. DEQ, *Memo: DEQ Secretary Dispels Misinformation and Urges EMC to Take Action* (May 2, 2024), https://perma.cc/VG2K-866J.

[142] DEQ, PFAS Standards Fiscal Note, *supra* note 8, at 53 (summarizing benefits of implementing numeric PFAS water quality standards for downstream drinking water utilities).

[143] PFAS National Primary Drinking Water Regulation, 89 Fed. Reg. 32532, 32533 (Apr. 26, 2024); DEQ, PFAS Standards Fiscal Note, *supra* note 8, at 8.

water utilities like the Cape Fear Public Utilities Authority that serve large areas, the price of installing 1,4-dioxane treatment could cost more than $23 million, with operating costs tacking on an additional $1.6 million each year.[144] And this is *after* the Cape Fear Public Utilities Authority spent $43 million installing advanced treatment to protect its customers from Chemours' PFAS pollution.[145] These costs are ultimately borne by ratepayers—the families and local businesses who have no responsibility in creating the pollution.

Ongoing toxic chemical pollution also threatens to decrease property values and increase health expenses. As the Department made clear, strong rules that limit PFAS pollution would have saved the state nearly $10 billion over 36 years by preventing illness, reducing water treatment costs, and preserving property values.[146] It is cheaper and far more fair to remove toxic chemicals at industrial sources—something these rules will not accomplish.[147]

V. The EMC has the data, law, and information it needs to adopt water quality standards—but it has chosen to side with polluters.

Over the past several years, the Department has tried to adopt health protective water quality standards for PFAS and 1,4-dioxane. The agency understood, from years of working with facilities, that dischargers do not voluntarily reduce their pollution.[148] That is why the Department determined that setting statewide standards with defined limits is the surest, most reliable way to achieve pollution reductions. The Department compiled extensive scientific research, economic data, and regulatory support for adopting rules that would protect North Carolinians.[149] Rather than adopt these rules, however, the EMC blocked the water quality standards at the request of the regulated community.

i. The history of the PFAS rules.

In July 2023, the Department began the process of adopting surface water quality standards for eight PFAS.[150] The Department went through all the necessary steps—it collected extensive data,[151] responded to a wide-range of questions from the EMC and stakeholder

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[144] Letter from Kenneth Waldroup, Cape Fear Pub. Util. Auth., to JD Solomon, N.C. EMC & Richard Rogers, N.C. DEQ (Nov. 7, 2024), https://perma.cc/S2FJ-R67T.

[145] *Frequently Asked Questions*, Cape Fear Public Utility Authority, https://www.cfpua.org/780/Frequently-Asked-Questions (last visited Apr. 23, 2026).

[146] DEQ, PFAS Standards Fiscal Note, *supra* note 8, at 53.

[147] N.C. Collaboratory, Treatment Technologies & Implementation Costs to Comply with Proposed 1,4-Dioxane Discharge Limits (Aug. 28, 2024), at 93–94, https://perma.cc/ERF4-TS3Y.

[148] *See* DEQ, PFAS Standards Fiscal Note, *supra* note 8, at 56 ("To date, there are limited examples of industry being responsible and voluntarily treating PFAS at the source and preventing the discharge of PFAS to the environment or disclosing their presence of these compounds.").

[149] *See generally id.*

[150] N.C. DEQ, Introduction to the 2023-2025 Surface Water Standards Triennial Review & PFAS Rulemakings (July 12, 2023), https://perma.cc/C9NB-A8X6.

[151] *See, e.g.*, N.C. DEQ, PFAS Water Quality Standards: Toxicological Summary Information (Nov. 9, 2023) (summarizing toxicological data that the Department collected to support standard development), https://perma.cc/G4H4-JQ68; N.C. DEQ, Potential Affected Source Types – Surface Water Quality Standards (Nov. 9, 2023) (summarizing how standards would impact industrial and municipal dischargers across the state), https://perma.cc/BL4A-M6LY; N.C. DEQ, NC PFAS Rulemaking Proposal Attachment A: Toxicological Summary Information and Derivation of Surface Water Quality Numerical Standards (June 24, 2024) (containing full description of toxicological data, how standards would be implemented, the expected costs and benefits to industry,

groups,[152] and prepared a 214-page fiscal note that was certified by the Office of State Budget Management.[153] The agency was poised to proceed to the full EMC, but certain members on the water quality committee prevented the Department from doing so after polluters asked the EMC to block the standards.

After the Department had spent more than a year compiling information to support the PFAS water quality standards, the North Carolina Chamber of Commerce sent a letter to the EMC on September 5, 2024 opposing the standards, citing vague and unsupported concerns with the "underlying science" and "workability."[154] The next day, the North Carolina Water Quality Association ("NCWQA")—a lobbying group for wastewater utilities—sent a letter to the EMC criticizing the water quality standards and asking the EMC to shift course and adopt a rule that only requires monitoring and voluntary source reduction.[155] Members of NCWQA are some of the leading sources of PFAS and 1,4-dioxane in the entire state.[156]

After receiving these letters from the Chamber of Commerce and the NCWQA, in September 2024, the water quality committee tabled the Department's PFAS water quality standards indefinitely and ordered the agency to start over.[157] Although the EMC directed the Department to develop "monitoring and minimization rules," it quickly became clear that the Commission had no intent to "minimize" toxic chemical pollution.

Over the next several months, the Department asked the water quality committee what they would like to see in a "monitoring and minimization" rule—specifically asking the committee how the rule would ensure that polluters actually *reduce* their pollution. Tracking these conversations, in December 2024, NCWQA sent an email to the Department arguing that mandating source reduction was akin to setting water quality standards (which the NCWQA opposed) and wrongly stating that industrial reductions were unnecessary because "the vast majority of the PFAS load statewide coming from [wastewater plants] is due to domestic loadings."[158] As discussed above in Section II.d), state, national, and international data shows this is false—wastewater plants that receive industrial waste have far higher levels of PFAS than

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the public, and the environment, and a summary of the affected industrial and municipal dischargers), https://perma.cc/9TC7-6J6U.

[152] *See, e.g.*, N.C. DEQ, Summary of Water Quality Committee Comments on 02B PFAS Rulemaking Presentation (Aug. 29, 2024), https://perma.cc/Y3GR-VABT; N.C. DEQ, Water Quality Committee Surface Water Standards (Aug. 29, 2024) (answers to written questions compiled by Steve Keen), https://perma.cc/QTV3-4VK2.

[153] DEQ, PFAS Standards Fiscal Note, *supra* note 8.

[154] Letter from N.C. Chamber of Commerce et al. to JD Solomon & Steve Keen, N.C. EMC (Sept. 5, 2024), https://perma.cc/9HJV-PHDN.

[155] Letter from Paul Calamita, Aqua Law, to JD Solomon, N.C. EMC (Sept. 6, 2024), https://perma.cc/5MGN-TUXW.

[156] *Compare Membership*, N.C. Water Quality Association, https://ncwqa.com/membership/ (last visited Dec. 8, 2025), *with Cape Fear River Basin 1,4-Dioxane Wastewater Discharge Data*, *supra* note 116 (listing top 1,4-dioxane dischargers in the Cape Fear River Basin), *and* Cape Fear River Basin WWTP PFAS and 1,4-Dioxane Sampling, *supra* note 115 (listing some of the top PFAS dischargers in the Cape Fear River Basin).

[157] N.C. EMC, EMC WQC Committee Meeting, YouTube (Sept. 16, 2024), at 2:58:53–2:59:40, https://www.youtube.com/watch?v=4A2lqYdy2yQ&list=PLsBpAjvXXIH0YXv94qvh-fsvd4lSXSaNA&index=9&t=10527s ("Move to direct the department to . . . propose a draft rule and a draft RIA to establish monitoring for every industrial and NPDES permit and require PFAS source reduction plans as part of every industrial and SEIU [sic] municipal . . . pretreatment program."); N.C. EMC, Water Quality Committee September 11, 2024 Meeting Minutes (2024), https://perma.cc/9XX9-YVR2.

[158] Email from Paul Calamita, Aqua Law, to Julie Grzyb, N.C. DEQ (Dec. 29, 2024), https://perma.cc/9LJA-4F3Q.

those who only receive domestic waste.[159] NCWQA ultimately asked the Department to hold off and proposed a different version of the rule—a version that did not require pollution to be reduced.[160]

The EMC's water quality committee voted to hold a special meeting on February 25, 2025 to discuss a monitoring and "minimization" rulemaking approach.[161] Ahead of that meeting, the Department again asked the central question: how would the rules actually require polluters to reduce their pollution?[162] That question was poorly received. On the morning of the meeting, Chair Solomon sent an email to Committee-Chair Keen, Commissioner Ellison, and Commissioner Baumgartner expressing frustration with the Department's attempt to craft rules that would require polluters to control their pollution.[163] Shortly after, Committee-Chair Keen cancelled the special meeting.[164]

In March 2025, the water quality committee reconvened to discuss a draft version of the PFAS monitoring and "minimization" rule—a version that was written by the polluters themselves. At the start of the meeting, Committee-Chair Keen admitted that NCWQA wrote 80 percent of the rules and that the Department was asked to simply "fill in the blanks."[165] During the meeting, commissioners emphasized that the rules did not need to require reductions of pollution because it "is not a treatment rule,"[166] and that they "weren't getting into the reduction business with this rule."[167] Adding insult to injury, the committee discussed ways to make the rules even weaker—pulling from additional recommendations that NCWQA sent Chair Solomon and Committee-Chair Keen.[168] Counsel for NCWQA had recommended (and the committee ultimately ordered) that the Department further weaken the rules by reducing its sampling requirements from all PFAS to only PFOA, PFOS, and GenX in order to "minimize the reporting requirements" for industry and wastewater plants.[169]

The proposed rules are far removed from what the Department intended. This is no surprise because they were written by polluters and intentionally crafted to ensure that neither

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[159] *See, e.g.* N.C. DEQ, Biosolids Study: EMC Summary, *supra* note 118, at slide 7; Duke, Burlington Study, *supra* note 91; 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.

[160] Email from Paul Calamita, Aqua Law, to Julie Grzyb, N.C. DEQ (Dec. 31, 2024), https://perma.cc/9LJA-4F3Q.

[161] N.C. EMC, Water Quality Committee January 8, 2025 Meeting Minutes (2025), at 5–6, https://perma.cc/26EQ-A6PU.

[162] N.C. DEQ, Continuation of PFAS Source Reduction Concept (Feb. 25, 2025), at slides 3, 5, https://perma.cc/H6VN-H83E.

[163] Email from JD Solomon, N.C. EMC, to Steve Keen et al., N.C. EMC (Feb. 25, 2025), https://perma.cc/T5X3-WNAM ("[I] see no need for required % reductions in this phase.").

[164] N.C. DEQ, *N.C. Environmental Management Commission Water Quality Committee Special Meeting Canceled* (Feb. 25, 2025), https://perma.cc/CW8Q-2LQH.

[165] March EMC WQC Meeting Recording, *supra* note 98, at 21:14–21:21.

[166] *Id.* at 34:03 (Commissioner Ellison explaining the rule).

[167] *Id.* at 1:08:49 (Commissioner Ellison explaining the rule).

[168] Email from Paul Calamita, Aqua Law, to Steve Keen et al., N.C. EMC (Mar. 11, 2025), https://perma.cc/UJ3S-NX82.

[169] *Id.*; N.C. EMC, EMC March Water Quality Committee Meeting, *supra* note 165, at 46:17–46:43 (Ellison explaining that collecting and reporting information on all compounds will be a burden on industry).

industry nor wastewater plants have to do *anything* about their toxic chemical pollution. Not only that, but unless the EMC changes course, the Department and the public will be denied valuable information about where their drinking water contamination is coming from. This is because the EMC bowed to polluters who want to keep the public in the dark about dozens of PFAS chemicals being released into our state's rivers and drinking water sources.

ii. The history of the 1,4-dioxane rules.

The 1,4-dioxane rules likewise have a fraught history. In 2015, the Department learned that North Carolina has some of the highest 1,4-dioxane pollution in the country.[170] In 2021, after years of monitoring and source identification, the Department attempted to adopt numeric water quality standards for the toxic chemical. Prior to that rulemaking, the Department had regulated 1,4-dioxane under the EPA-approved narrative Toxic Substances Standard, 15A N.C. Admin. Code 2B.0208, limiting concentrations of the chemical to 0.35 ppb in drinking water sources and 80 ppb in non-water supplies.[171] Noting that numeric standards would allow the agency to more efficiently control 1,4-dioxane while providing regulatory certainty to permittees, the Department sought to codify numeric water quality standards identical to the values already used by the agency (0.35 and 80 ppb).[172] These numeric standards would also provide clarity because polluters have challenged the agency's reliance on the narrative standard in court and the litigation is ongoing.[173] Ultimately, after the Department spent months preparing the rule, reviewing public comments, and obtaining approval of the fiscal analysis by the Office of State and Budget Management, the EMC adopted the agency's 1,4-dioxane standards in 2022.[174] But at the final step in the rulemaking process, a 1,4-dioxane polluter intervened and made sure those standards were never put into place.

After the EMC adopted the 1,4-dioxane standards, the rules went to the North Carolina Rules Review Commission. That commission's authority is limited to reviewing rules for administrative errors (spelling errors, inconsistencies, etc.)—it is not allowed to review the substance of the rules.[175] Nevertheless, the city of Reidsville, a member of the NCWQA and known source of 1,4-dioxane, lobbied the Rules Review Commission with misleading arguments that complying with the standards would be too costly to wastewater utilities and industry.[176] Although the Office of State and Budget Management had already certified the fiscal analysis for the standards, the Rules Review Commission adopted Reidsville's economic arguments and

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[170] DEQ, 2016 1,4-Dioxane Study, *supra* note 115, at 2.

[171] The narrative toxic substances standard requires the Department use a translator formula to calculate the level of pollution that can be released to comply with the prohibition against releasing a cancer-causing chemical above the 1-in-1 million cancer risk level. 15A N.C. Admin. Code 2B.0208(a)(2)(B).

[172] *See* N.C. DEQ, Regulatory Impact Analysis: 2020-2022 Triennial Review – Surface Water Quality Standards (2020), at 13–15, https://perma.cc/4J7A-HUSZ.

[173] *See North Carolina Dep't Env't Quality v. City of Asheboro*, 24-CV-032664-910 (N.C. Super. Ct., Wake Cnty. 2024).

[174] N.C. EMC, Report of Proceedings to the Environmental Management Commission on the Proposed Changes to the Surface Water Quality Classifications and Standards For the Protection of Surface Waters Regulations Triennial Review (Mar. 10, 2022), at 55, https://perma.cc/ZP95-3U6C; N.C. EMC, March 10, 2022 – Draft Minutes of the Meeting (Mar. 10, 2022), at 7, https://perma.cc/3QZE-BM7X.

[175] N.C. Gen. Stat. § 150B-21.9(a).

[176] Letter from Patrick Mincey & Robert El-Jaouhari, Cranfill Sumner, to Members of the N.C. Rules Review Commission et al. (Apr. 13, 2022), https://perma.cc/2W42-36VC.

blocked the rules from going into effect.[177] Counsel for the Rules Review Commission later thanked counsel for Reidsville for providing him with the justification he was looking for to stonewall the rules.[178]

In November 2023, the EMC filed a lawsuit against the Rules Review Commission for its overreach in blocking the 1,4-dioxane water quality standards.[179] But in February 2024, after the legislature changed the make-up of the EMC, the new EMC dismissed the lawsuit, thereby ensuring the numeric 1,4-dioxane standards did not go into place.[180]

The Department tried again. This time, the agency presented the 1,4-dioxane water quality standards as part of the 2023-2025 Triennial Review package. Shortly after the Department announced it would be adopting 1,4-dioxane numeric standards, the cities of Asheboro, Greensboro, and Reidsville (members of NCWQA and the three largest municipal sources of 1,4-dioxane in the state) sent a letter to the EMC urging the commission to delay the 1,4-dioxane standards and offering misleading information regarding the costs of complying with the standards.[181] The three cities argued that in order to comply with the limits, they would have to install extraordinarily expensive treatment technology at the utility itself[182]—hiding the fact that they can put the burden of treatment on industrial polluters.[183] Under the Clean Water Act, wastewater plants have the authority and obligation to make their industrial customers treat or eliminate 1,4-dioxane before it ever reaches the utility.[184]

Nevertheless, over the next several months, the EMC's water quality committee parroted the three cities' arguments,[185] questioned the legitimacy of EPA's health data,[186] suggested the

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[177] N.C. RRC, RRC Staff Opinion 15A NCAC 02B. 0208, .0212, .0214, .0215, .0216, and .0218 (May 2022), https://perma.cc/2JH5-F45L.

[178] Email from Lawrence Duke, N.C. RRC, to Robert El-Jaouhari, Cranfill Sumner (June 13, 2022), https://perma.cc/9VDH-P3SF.

[179] Complaint, *N.C. Env't Mgmt. Comm'n v. N.C. Rules Rev. Comm'n*, 23-CV-032096-910 (N.C. Super. Ct., Wake Cnty. Nov. 9, 2023), https://perma.cc/99TR-RGJ6.

[180] Notice of Voluntary Dismissal Without Prejudice, *N.C. Env't Mgmt. Comm'n v. N.C. Rules Rev. Comm'n*, 23-CV-032096-910 (N.C. Super. Ct., Wake Cnty. Feb. 16, 2024), https://perma.cc/RG3K-RKQT.

[181] Letter from Elijah Williams, City of Greensboro et al., to Members of the N.C. EMC Water Quality Comm. (Mar. 8, 2024), https://perma.cc/F5ZJ-ETTD.

[182] *Id.* at Exhibit A.

[183] *See* Draft Cape Fear River Basin Plan Ch. 13: 1,4-Dioxane, *supra* note 115, at 33 ("Ultimately, it is up to the City of Asheboro to determine if they want to bear the cost of treating their waste to eliminate 1,4-dioxane or to pass the burden on to the generator of the contaminant wastewater."); *id.* at 13-34, 39 (explaining that Greensboro and Reidsville have already required their industrial users reduce their 1,4-dioxane contributions, enabling the cities to typically meet the levels necessary to ensure long-term human health protections for downstream drinking water supplies).

[184] 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 that support municipal wastewater plants. Wastewater plants can demand their industries provide information on the pollutants sent to their system. 40 C.F.R. § 403.8(f)(2)(ii); U.S. EPA, Introduction to the National Pretreatment Program (Jun. 2011), https://perma.cc/95VY-S8YU, at 4-3 to 4-4. Once the utility has the information it needs, it has broad authority to: (1) "deny or condition" pollution received from industries, (2) control industrial pollution "through Permit, order or similar means," and (3) require "the installation of technology." 40 C.F.R. § 403.8(f)(1). Wastewater plants can also implement local limits to further control industrial pollution. *Id.* § 403.5(c).

[185] *See, e.g.*, N.C. EMC, Water Quality Committee, YouTube (Mar. 13, 2024), at 1:14:00– 1:17:00 (questioning the costs associated with the rule), https://www.youtube.com/watch?v=L1FCj9LKwn8&list=PLsBpAjvXXIH0YXv94qvhfsvd4lSXSaNA&index=16 ;

need for cancer studies on human beings before regulating 1,4-dioxane,[187] and ignored the communities worried about drinking water laden with the cancer-causing chemical.[188] The standards were removed from the Triennial Review process in the fall of 2024. Then, in March 2025, after the water quality committee forced the Department to put forth the polluter-written PFAS rules, the committee told the Department to abandon 1,4-dioxane standards and instead prepare "monitoring and minimization" rules that mirrored the empty PFAS rules.[189]

Like the PFAS rules, the 1,4-dioxane rules are written by the regulated community. They represent a polluter wish-list, and they do not require dischargers to take *any* steps to reduce their toxic chemical pollution. These rules are insulting to the Department which has spent more than *ten years* tracking and identifying the sources of 1,4-dioxane across our state and has attempted to limit discharges through multiple means, including through discharge permits[190] and special orders by consent.[191] And they are insulting to the communities who have suffered from exposure to this pollution for decades.

VI. The EMC must abandon its toothless monitoring and minimization approach; if it does not, the EMC must make significant changes to hold polluters accountable.

The proposed rules do nothing more than give industry time to dump toxic chemicals into our rivers and drinking water supplies at the expense of communities downstream. The EMC must abandon the monitoring and minimization approach and immediately adopt health protective water quality standards. The Department has already collected the data, analyzed the

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id. at 1:29:00–1:34:45 (discussing the cities' cost arguments, raising concerns with the fiscal impacts of adopting the 1,4-dioxane numeric standards, adopting the cities' arguments that the agency's use of the narrative standard as an economic baseline was improper); *id.* at 1:45:28–1:45:52 ("The costs are massive [] no matter how you look at it for the treatment plants . . . and I think we owe it to them . . . to make sure we get this rule right.").

[186] *See, e.g.*, *id.* at 1:16:52–1:24:08 (questioning EPA directive to update the bioaccumulation factor used in developing numeric criteria for 1,4-dioxane); *id.* at 1:44:21–1:45:23 ("I would comment that the sound scientific rationale requirement [] is a challenge, I think. We're relying on all kinds of EPA numbers and [] this is the same EPA that changed the nationwide requirements for lead in drinking water based solely on the research of Dr. Herbert Needleman whose research was totally panned because it turned out he falsified all his data . . . . This is the same EPA that fed people diesel fumes right up the road in RTP and [] there are recently published reports of top tier peer-reviewed journals that find almost 50 percent of those studies cannot be replicated and/or the data were bogus . . . . As far as 1,4-dioxane goes, I think we need to do a lot more homework before we put these standards into a rule.").

[187] *See* N.C. EMC, Water Quality Committee, YouTube (May 8, 2024), at 2:17:01– 2:18:23 https://www.youtube.com/watch?v=FtXZSa4Me5k&list=PLsBpAjvXXIH0YXv94qvhfsvd4lSXSaNA&index=10 (Commissioner Ellison asking "are there any new epidemiological studies on 1,4-dioxane in humans" and continuing to push when Assistant Secretary Masemore tried to explain EPA and leading scientific organizations do not intentionally expose humans to cancer causing chemicals).

[188] *See* Letter from Sean M. Sullivan, Willams Mullen, to Members of the N.C. EMC Water Quality Comm. (May 1, 2024), https://perma.cc/7V7Y-4ZA6.

[189] N.C. EMC, Water Quality Committee March 12, 2025 Meeting Minutes (2025), https://perma.cc/99JX-UVE6 (explaining the committee "[d]irected DEQ staff to complete the 1,4-dioxane rule as discussed during the meeting for monitoring and minimization plan for the May WQC meeting").

[190] *See* N.C. DEQ, Final NPDES Permit Renewal Permit NC0026123 Asheboro WWTP (Aug. 21, 2023) (final permit establishing 1,4-dioxane permit limits); N.C. DEQ, Final NPDES Permit NC0003719 Alpek Polyester USA, LLC (Feb. 1, 2024). Unfortunately, the Asheboro permit was challenged by the city of Asheboro and never went into effect, and the Alpek permit was withdrawn.

[191] N.C. EMC, Amended Special Order by Consent, EMC SOC WQ S19-010 (Nov. 22, 2021), https://perma.cc/VKU8-6TYD.

costs and benefits, and compiled the legal basis for doing so. If the EMC continues the monitoring and minimization approach—a path we strongly disagree with—it must, at the very least, make significant changes to ensure sources are forced to reduce their toxic chemical pollution and that the public has access to information about pollution.

a. The final rules must include mandatory reduction measures.

The biggest flaw with the monitoring and minimization approach is that there is no requirement to actually minimize the pollution flowing from industries and wastewater plants. If the EMC does not abandon this approach (as it should), it must at least add reduction targets to the rules. The reduction targets could be established in two different ways: they could be based on the health-based water quality standards proposed by the Department, or they could be based on what existing technologies can reliably achieve.

The latter technology-based approach is already the baseline in NPDES permitting. The Clean Water Act requires permitting agencies to, at the very least, incorporate technology-based effluent limitations on the discharge of pollutants.[192] Technology-based limits "represent the *minimum* level of control that *must* be imposed in a permit,"[193] and they are "developed independently of the potential impact of a discharge on the receiving water."[194] For certain industries and pollutants, EPA has established national effluent limitation guidelines, which set nationwide requirements on treatment levels. But where national effluent limitation guidelines are inapplicable—either for the industry or the pollutant at issue[195]—technology-based limits are established on a case-by-case basis using the permit writer's best professional judgment.

Setting case-by-case limits requires an evaluation of existing technologies. Fortunately, effective PFAS and 1,4-dioxane treatment technologies are available, and companies across the globe use them to reduce or eliminate industrial pollution. Granular activated carbon, for instance, has been used to remove PFAS from drinking water and wastewater for *over 15 years*.[196] The technology has been demonstrated to capture over 99 percent of PFAS discharged,[197] and is "available, relatively inexpensive, and can be scaled to suit treatment

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[192] 40 C.F.R. § 125.3(a); 33 U.S.C. § 1311; *see also* 40 C.F.R. § 123.25(a)(36) (requiring state programs to have legal authority to implement criteria and standards for technology-based requirements).
[193] 40 C.F.R. § 125.3(a) (emphasis added); Memorandum from Radhika Fox, EPA, re Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs Permit (Dec. 5, 2022), at 3 (emphasis added) [hereinafter EPA PFAS NPDES Memo], Attachment 21.
[194] EPA, NPDES Permit Writers' Manual (2010), at 5-1 [hereinafter NPDES Permit Writers' Manual], https://www.epa.gov/npdes/npdes-permit-writers-manual.
[195] NPDES Permit Writers' Manual, *supra* note 194, at 5-45. The only exception to this requirement is when the pollutant was considered by EPA when developing the guideline, which is not applicable for PFAS. Case-by-case technology-based limits are applicable "[w]hen effluent guidelines are available for the industry category, but no effluent guidelines requirements are available for the pollutant of concern." NPDES Permit Writers' Manual, *supra* note 194, at 5-45.
[196] ITRC, *PFAS – Per- and Polyfluoroalkyl Substances 12 Treatment Technologies* (last visited Apr. 24, 2026), https://perma.cc/VPV3-JY2Q; *see also* ITRC, PFAS Treatment Technology Table (Oct. 2021), https://perma.cc/HQ96-2WF2.
[197] EPA, ERG Evaluation of Industrial Wastewater PFAS Treatment Technologies Report, Revision 1 (Feb. 5, 2021), at 4-6, https://perma.cc/9WAA-BU9W [hereinafter ERG, PFAS Treatment Technologies Report]; *see also* EPA, Table 4-1 Summary of Treatment Technologies for PFAS Removal, https://perma.cc/K85J-8NZJ; DEQ, PFAS Standards Fiscal Note, *supra* note 8, at 30, 60.

requirements."[198] Other technologies like reverse osmosis and ion exchange can treat 1,4-dioxane and remove nearly all PFAS, including short-chain compounds that might break through other types of technologies.[199] Utilizing existing technologies like these is how Congress determined the Clean Water Act would achieve its ultimate goal of eliminating industrial pollution.[200] And because it works, EPA currently recommends the technology-based approach be used to reduce or eliminate discharges of PFAS and other persistent chemicals like 1,4-dioxane.[201] Implementing technology-based limits makes sound sense for these rules.

After sources of PFAS and 1,4-dioxane are identified as part of the initial screening, the rules should instruct industrial discharges and significant industrial users to evaluate different technologies that are available to reduce their pollution to the maximum extent feasible. Industries could either look at existing literature, hire consultants, or conduct their own pilot studies to identify which technology would be most effective work for their waste. The rules should then require industries to either install such technology or propose limits based on what technology can achieve. Because we know that existing technology can virtually eliminate PFAS and 1,4-dioxane, the limits would be expected to be low. The minimization plans (with the technology-based reduction limits) would then be incorporated into NPDES permits issued to direct industrial dischargers or into pretreatment permits issued to significant industrial users. Finally, for the technology-based reduction targets to be effective, the rules must make clear that both the Department and wastewater plants have the authority to enforce the reduction target. Such enforcement should include penalties for failing to meet the reduction targets.

b. The proposed rules must require dischargers to monitor and report all PFAS detected under EPA Method 1633, not just PFOA, PFOS, and GenX.

Another significant flaw in the proposed rules is the failure to require sampling for more than three PFAS compounds. While the original draft monitoring and minimization rules required industries to sample for all PFAS compounds detected under EPA Method 1633 (40 compounds), the EMC cut that provision to "minimize the reporting requirements" and reduce the "burden" on industries and wastewater plants collecting the data.[202] This decision not only contradicts the reality of how water quality samples are collected and reported, but will prevent the Department and the public from identifying significant sources of PFAS pollution. Communities in North Carolina, who are suffering from PFAS pollution in their drinking water, have a clear right to know where that pollution is coming from.

PFAS water quality samples are not collected, analyzed, or paid for by the individual PFAS compound. Any industry or wastewater plant conducting PFAS sampling collects one vial or tube of wastewater to be processed by the laboratory. The laboratory will then run an analytical method which automatically provides results for all compounds that can be detected. This means that after collecting a sample, the industry or wastewater plant will most likely

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[198] ERG, PFAS Treatment Technologies Report, *supra* note 197, at 4-6.
[199] *Id.* at 4-9.
[200] *Nat. Res. Def. Council v. EPA*, 808 F.3d 556, 563–64 (2d Cir. 2015); *see also id.* at 563 (explaining that technology-based limits "set effluent limitations on a point source based on how effectively technology can reduce the pollutant being discharged").
[201] EPA, Implementing Case-by-Case Technology-Based Effluent Limitations in NPDES Permits For Pollutants of Emerging Concern (Jan. 2025), at 1, https://perma.cc/QF7B-GWDX.
[202] March EMC WQC Meeting Recording, *supra* note 98, at 46:17.

receive a report that includes information on the levels of 40 PFAS compounds by default. Reporting only three compounds would require an industry or wastewater plant to manually redact the 37 other PFAS from the report, thereby *increasing* the amount of work.[203]

While limiting the PFAS reporting requirements does *not* reduce the burden on the regulated community, it significantly limits the amount of information that the Department and the public will glean from the rules and shields PFAS sources from accountability and scrutiny. Most industrial dischargers or significant industrial users will not voluntarily share the full suite of data. Because those industries are not subject to public records law, there will be no way for the public to access that information. And even if significant industrial users happen to share the full suite of data with a wastewater plant (who would be subject to public records laws), the public would have to submit a records request to every single municipality in the state, and then receive and catalogue that data, to even *begin* to understand the scope of pollution. Most towns do not have staff dedicated exclusively to responding to these requests, meaning it could take months to receive information. And utility staff will have to spend time and resources pulling information responsive to one (or possibly hundreds of) public records request(s). All of this assumes the labs will report all 40 compounds. If the industry or utility is successful in asking the laboratory to report only PFOA, PFOS, and GenX, neither the public nor the Department will have any way to obtain that information. In short, contrary to what the EMC has said,[204] the public will be hard-pressed to access information about sources of PFAS in the state. And limiting reporting requirements to three compounds will create more work, not less, if municipalities have to respond to records requests from the public seeking such information.

Limiting data to three PFAS compounds may cause serious harm down the line. Data from North Carolina already shows that PFOA, PFOS, and GenX are by far not the only compounds released by industries across the state today.[205] As industry continues to shift towards newer PFAS, limiting investigations to three compounds means that significant sources of industrial pollution will go undetected.

Recent research published by Duke University, discussed more in Section II.d) above, highlights this problem. Duke University analyzed PFAS levels flowing into the city of Burlington's wastewater treatment plant to identify the source of PFAS pollution.[206] To do so, researchers at Duke University knew that they could not focus on just one PFAS compound or a few—that this "would lead to significant underestimation of total PFAS loadings."[207] They therefore used a broad analytical method that would more accurately identify total PFAS levels. As a result, Duke was able to pinpoint the source of PFAS: an industrial textile facility releasing levels at 1,370,000 ppt.[208] The predominant PFAS in the textile facility's effluent were PFBA,

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[203] The discharger will be paying for a full suite of PFAS sampling, receive a lab report with dozens of PFAS detected, and then have to identify and individually report the GenX, PFOA, and PFOS levels detected – short of saving industry money, this change could actually cost them more time and resources.
[204] January Full EMC Meeting Recording, *supra* note 120, at 2:09:18–2:14:17.
[205] *See, e.g.*, N.C. DEQ, Cape Fear Industrial PFAS & 1,4-Dioxane Sampling, *supra* note 126; *see also Data*, PFAS Research Network, https://ncpfasnetwork.com/data/ (last visited Apr. 23, 2026).
[206] Duke, Burlington Study, *supra* note 91; Memorandum of Agreement Between City of Burlington, North Carolina and Haw River Assembly, *supra* note 91, at 2–3.
[207] Duke, Burlington Study, *supra* note 91, at C.
[208] *Id.*

PFPeA, and PFHxA.[209] If Duke had only considered the three compounds listed in the proposed rules, it would not have found the industrial source in Burlington that was harming the drinking water for thousands of people downstream.

Moreover, limiting the sampling to only three compounds creates the perverse incentive for industry to swap out their use of PFOA, PFOS, or GenX for other, equally harmful compounds. This type of evasive behavior is exactly what led to the GenX crisis in eastern North Carolina. As discussed above, once regulators understood that PFOA was harmful, DuPont and Chemours intentionally swapped one toxic chemical (PFOA) for another (GenX). It was with GenX that Chemours silently contaminated the drinking water for 500,000 North Carolinians, creating one of the worst public health crises in North Carolina's history. The same type of chemical "swap" might be occurring at Lear Corporation in Duplin County. Since Lear announced it would phase out use of PFAS, concentrations of certain compounds like PFPeA, PFHxA, and PFHpA have generally decreased, while concentrations of PFBA and 2-(N-Methylperfluorooctanesulfonamido)acetic acid ("N-MeFOSAA") have increased.[210]

Limiting the PFAS rules to PFOA, PFOS, and GenX not only adds work for the regulated community, but also deliberately prevents the Department and the public from identifying sources of ongoing toxic chemical pollution. The EMC must require sampling and public reporting for all PFAS compounds detected under EPA Method 1633.

c. The rules must apply to all sources of PFAS and 1,4-dioxane.

The EMC requested comments on whether the PFAS and 1,4-dioxane rules should be limited to industries that fall within certain industrial (NAICS/SIC) codes. If the goal of the rules is truly to understand sources of toxic chemical pollution, then the EMC should not limit the scope to certain industry categories. The initial screening requirements only mandate a handful of samples that would only cost each discharger several hundred dollars. If the industry is not a source, they do not have to prepare a minimization plan or take additional action. The potential benefits of sampling each industry vastly outweigh the costs of being overinclusive.

The EMC also requested comments on whether industries and wastewater plants should be allowed to stop monitoring and minimizing pollution once they meet a certain threshold. The current proposed rules require an industry to monitor as long as its 1,4-dioxane effluent levels are greater than 1 ppb (the current analytical detection limit)[211] and/or its PFAS effluent levels are higher than their influent levels.[212] The EMC should not make these rules any weaker than they already are by giving industry an arbitrary off-ramp.

The only way a discharger should be let off the hook is if it can show that its pollution will not continue—and that pollution spikes will still be detected and enforced against. PFAS and 1,4-dioxane pollution is often intermittent, with spikes and slugs rather than steady releases. Therefore, the Department or wastewater plant must incorporate monitoring and limits into facilities' permits to ensure levels stay low. Without such limits, there is no guarantee that levels

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[209] Duke University, Burlington Elevate Inf and Eff Data (Jan. 8, 2025), https://perma.cc/M58Q-L99C.
[210] Lear Corp., PFAS Results NC0002305, *supra* note 128.
[211] 15A N.C. Admin. Code 02B .0513(e)(1), (f) (1,4-dioxane direct dischargers); 15A N.C. Admin. Code 02H .0924(e)(1), (f) (1,4-dioxane SIUs).
[212] 15A N.C. Admin. Code 02B .0512 (e)(1), (f), (g) (PFAS direct dischargers); 15A N.C. Admin. Code 02H .0923(e)(1), (f), (g) (PFAS SIUs).

would remain low over time. Industries may temporarily truck waste off-site or store their pollution in totes before resuming discharges. Although the Department and wastewater utilities already have the authority to impose such permit limits and conditions,[213] these rules must not be further weakened by allowing dischargers to stop taking action based on temporary measures or limited sampling results.

d. Known sources of PFAS and 1,4-dioxane must immediately begin preparing minimization plans.

We are aware that industry groups like the North Carolina Manufacturers Alliance are demanding the EMC give *known* sources of toxic PFAS and 1,4-dioxane additional time to continue to monitor their pollution before preparing a minimization plan.[214] As currently written the proposed rules allow an industry to submit historic sampling results as their baseline monitoring, resulting in an expedited timeline for preparing a minimization plan.[215] Chair Solomon touted that this requirement was essential and important to the EMC, stating

> We know that some people are bad offenders…. If we know there's bad players, we don't want to wait to do all this sampling. We want to have the leverage to go get them. So, if they give us four and a half years of data…we are going to go get them off the bat. They have got to go right into implementation, get their plan submitted, and go into implementation off the bat. We're not going to wait around for them to sample because we know they're bad.[216]

The EMC cannot amend these rules to make them weaker than they already are by allowing known sources of PFAS and 1,4-dioxane to delay preparing minimization plans. If anything, the EMC should amend portions of these rules to *require* that prior sampling be used for baseline monitoring and *mandate* that either the Department or the wastewater plant immediately order a minimization plan be prepared if any prior sampling shows the industry is a source. Doing so would support the EMC's purported goal of addressing bad offenders "off the bat."

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[213] *See supra* 106–107.
[214] *See* Letter from N.C. Manufacturers Alliance to N.C. Environmental Management Commission (Jan. 6, 2026), https://perma.cc/85HL-MFYH.
[215] 15A N.C. Admin. Code 02B .0513(d)(3), (4) (1,4-dioxane direct dischargers); 15A N.C. Admin. Code 02B .0512 (d)(3), (4) (PFAS direct dischargers); 15A N.C. Admin. Code 02H .0924(d)(3), (4) (1,4-dioxane SIUs); 15A N.C. Admin. Code 02H .0923(d)(3), (4) (PFAS SIUs).
[216] January Full EMC Meeting Recording, *supra* note 120, at 1:44:45–1:45:21.

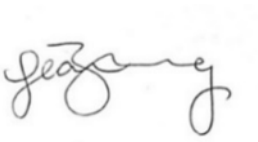
VII. Conclusion

As we and other groups have written before, North Carolina families, businesses, schools, and communities deserve real action on PFAS and 1,4-dioxane. It is unethical to ask our communities to stand by and wait indefinitely while *hoping* that industry will voluntarily reduce its pollution. Experience shows us this will not happen. North Carolina communities will be forced to either unfairly pay to clean up water polluted by upstream industries—or drink contaminated water.

The EMC has the information and authority to adopt health-protective water quality standards right now. It must abandon these polluter-written "monitoring and minimization" rules and promptly adopt water quality standards for PFAS and 1,4-dioxane. If it does not (a decision we vehemently disagree with), it must at least revise the rules to require mandatory reduction targets and public transparency for all sampling data.

Thank you for your attention to this critical matter. Please contact me at *jzhuang@selc.org* or at 919-967-1450 if you would like to discuss the contents of this letter.

Sincerely,



Jean Zhuang

Hannah Nelson

Submitted on behalf of:

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Clean Cape Fear, Emily Donovan, *info@cleancapefear.org*
Clean Water for North Carolina, Hope Taylor, *hope@cwfnc.org*
Coastal Carolina Riverwatch – White Oak Waterkeeper, Riley Lewis, *rileyl@coastalcarolinariverwatch.org*
Grays Creek Residents United Against PFAS in Our Wells and Rivers, Michael Watters, *wattersm@gmail.com*
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Sustainable Sandhills, Jonelle Kimbrough, *jonelle@sustainablesandhills.org*
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cc:

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ATTACHMENT A

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July 8, 2025

Via E-Mail
J.D. Solomon, Chair
North Carolina Environmental Management Commission
North Carolina Department of Environmental Quality
1617 Mail Service Center
Raleigh, NC 27699-1617
Jd.solomonemc@deq.nc.gov

Re: Opposition to Polluter-Written PFAS & 1,4-Dioxane Rules

Dear Chair Solomon and Members of the Environmental Management Commission:

The Southern Environmental Law Center, on behalf of the following organizations, writes to express our strong opposition to the proposed rules regarding per- and polyfluoroalkyl substances ("PFAS") and 1,4-dioxane that may be considered by the Water Quality Committee on July 9, 2025 or at future meetings.

Cape Fear River Watch
Clean Cape Fear
Clean Water for North Carolina
Environmental Justice Community Action Network
Grays Creek Residents United Against PFAS in our Wells and Rivers
Haw River Assembly
NC League of Conservation Voters
NC Sierra Club
North Carolina Stop GenX in Our Water
NRDC
Toxic Free NC

As the Commission knows, these rules fall far short of what is needed to meaningfully reduce toxic chemical pollution in North Carolina. If adopted, they could allow over 500 industrial facilities across North Carolina to continue to pollute our drinking water indefinitely. Under the proposed rules, all that polluters must do is collect a handful of water quality samples and prepare a plan for addressing their pollution. But the rules impose no consequences or penalties if a polluter falls short of its plan, even if it *increases* their toxic chemical discharges.

These rules do not protect the millions of North Carolinians currently exposed to PFAS and 1,4-dioxane. In fact, they risk doing more harm than good by creating the illusion of action while enabling continued contamination.

By moving the rules forward, the Commission asks our communities to trust that industries across North Carolina will do the right thing—to hope that they will suddenly volunteer to control their pollution. History tells us that this will not happen. For decades, industries like Chemours have silently polluted the air, soil, groundwater, and drinking water across the state. And despite all the data showing that these toxic chemicals are harming North Carolina families, polluters have refused to act on their own.

Inaction will not only harm our communities, it will also be costly. The state's Department of Environmental Quality itself has estimated that ongoing PFAS pollution could cost our drinking water utilities hundreds of millions in treatment expenses, lead to 10,000 additional deaths, and cause a loss of $1.5 billion in property values.[1] We do not have time to *hope* that polluters will do the right thing. We need the Environmental Management Commission to do what it is legally required to do—pass rules that protect people, not polluters.

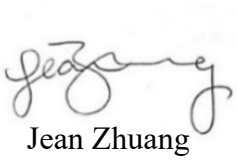
It is not too late to change course. Over the past several years, the Department of Environmental Quality developed science-based, protective water quality standards for PFAS and 1,4-dioxane that would require polluters to treat their waste and reduce toxic discharges.[2] As the Department made clear, the PFAS standards alone would have saved the state nearly $10 billion over 36 years by preventing illness, reducing water treatment costs, and preserving property values.[3] The Environmental Management Commission has the information, data, and authority it needs to revisit the Department's materials and move forward with a set of rules that meaningfully protect the people of North Carolina.

We urge you to reject the polluter-written PFAS and 1,4-dioxane rules and instead adopt enforceable standards that require industries and wastewater treatment plants to reduce PFAS and 1,4-dioxane discharges immediately. North Carolina families deserve clean, safe drinking water—not regulations that protect polluters at their expense.

Thank you for your attention to this critical matter. Please contact us at *hnelson@selc.org* and *jzhuang@selc.org* or at 919-967-1450 if you would like to discuss the contents of this letter.

Sincerely,

Hannah Nelson



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cc:

Reid Wilson, Secretary of the Department of Environmental Quality, *DEQSecretary@deq.nc.gov*
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[1] N.C. DEQ, Fiscal Note for Adoption Amendment of 15A NCAC 02B .0200 and 15A NCAC 02B .0400m (July 10, 2024), https://www.osbm.nc.gov/documents/files/DEQ_2024-07-10, at 5, 6, 51–52.
[2] *Id.* at 51–53.
[3] *Id.* at 53.

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Toxic Free NC, Alexis Luckey, *alexis@toxicfreenc.org*

ATTACHMENT B

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December 10, 2025

Via E-Mail
John D. (JD) Solomon, Chair
North Carolina Environmental Management Commission
North Carolina Department of Environmental Quality
1617 Mail Service Center
Raleigh, NC 27699-1617
Jd.solomonemc@deq.nc.gov

Re: Opposition to Polluter-Written PFAS & 1,4-Dioxane Rules

Dear Chair Solomon and Members of the Environmental Management Commission:

The Southern Environmental Law Center, on behalf of Cape Fear River Watch, Clean Cape Fear, Clean Water for North Carolina, Coastal Carolina Riverwatch, Haw River Assembly, North Carolina Conservation Network, North Carolina Sierra Club, NRDC, Toxic Free NC, and Winyah Rivers Alliance, writes to reiterate our strong opposition to the proposed rules regarding per- and polyfluoroalkyl substances ("PFAS") and 1,4-dioxane that will be considered by the Environmental Management Commission ("EMC") in January 2026. This letter incorporates by reference our previous letter sent to the EMC on July 8, 2025.[1]

Across our state, more than 3.5 million North Carolinians drink water with unsafe levels of PFAS,[2] and over 1 million drink water laden with 1,4-dioxane.[3] In addition, harmful levels of PFAS have been detected in North Carolina fish[4] and crops,[5] and in certain parts of the state, women and children are told to refrain from eating even one fish in order to protect themselves from devastating health impacts.[6] The Department of Environmental Quality ("the Department")

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[1] Letter from Hannah Nelson & Jean Zhuang, SELC, to JD Solomon, EMC (July 8, 2025), Attachment 1.
[2] *See* N.C. DEQ, Fiscal Note for Adoption Amendment of 15A NCAC 02B .0200 and 15A NCAC 02B .0400 (July 27, 2024), at 2, https://perma.cc/6YPA-HUTT [hereinafter DEQ, PFAS Standards Fiscal Note].
[3] *See* N.C. DEQ, 1,4-Dioxane in Drinking Water Legislative Report (May 1, 2024), at 7–8, https://perma.cc/T94L-JTCK (explaining that those drinking water from the Cape Fear River Basin were exposed to some of the highest 1,4-dioxane levels in the country); *see also* Hannah McCloskey, *A Closer Look at PFAS Drinking Water Regulations*, N.C. Collaboratory (Jan. 17, 2025), https://collaboratory.unc.edu/news/2025/01/17/a-closer-look-at-pfas-drinking-water-regulations/#:~:text=PFAS%20have%20been%20contaminating%20NC's,including%20the%20City%20of%20Wilmington (explaining that more than 1.5 million people drink water from the Cape Fear River Basin).
[4] *See* Anna K. Boatman et al., *Assessing Per- and Polyfluoroalkyl Substances in Fish Fillet Using Non-Targeted Analyses*, 58 Env't Sci. & Tech. 14486–14495 (2024), https://perma.cc/5QN5-ENPX; N.C. DHHS, *NCDHHS Recommends Limiting Fish Consumption from the Middle and Lower Cape Fear River Due to Contamination With "Forever Chemicals"* (July 13, 2023), https://www.ncdhhs.gov/news/press-releases/2023/07/13/ncdhhs-recommends-limiting-fish-consumption-middle-and-lower-cape-fear-river-due-contamination [hereinafter DHHS, Fish Consumption Advisory]; N.C. DEQ, DEQ Water and Fish Study Presentation: Saltwater Samples (Oct. 1, 2025), https://perma.cc/K2BK-XPXU.
[5] Pingping Meng et al., *Residential Garden Produce Harvested Near a Fluorochemical Manufacturer in North Carolina Can Be An Important Fluoroether Exposure Pathway*, 72 J. Agric. & Food Chem. 26874 (2024), https://perma.cc/W7EP-7DMJ; *NC Farmer Losing Crop Because of Unsafe Levels of Chemicals in Water*, ABC11 (July 15, 2024), https://abc11.com/post/nc-farmer-losing-crop-because-unsafe-levels-chemical/15061984/.
[6] *See* DHHS, Fish Consumption Advisory, *supra* note 4.

spent years trying to promulgate health-protective water quality standards that would control these industrial chemicals statewide—to protect families and require industry to bear the cost of its own pollution. After learning about the state's 1,4-dioxane pollution in 2015 and PFAS pollution in 2017, the Department spent thousands of hours researching these chemicals, collecting data on sources, and assessing impacts on North Carolina communities—all with the end goal of developing water quality standards. But when the time finally came for the EMC to advance the Department's standards, several commissioners on the water quality committee blocked the agency's efforts and replaced the standards with the toothless "monitoring and minimization" rules that will be before the full commission in January.

As the EMC knows, these rules fall far short of what is needed to meaningfully reduce toxic chemical pollution in North Carolina. If adopted, the monitoring and minimization rules could allow over 500 industrial facilities across the state to continue to pollute our drinking water indefinitely. These rules will not protect North Carolina families, businesses, churches, and schools that deserve clean drinking water, and instead represent a step *backwards* from current progress. To a newcomer, it might seem puzzling why the EMC is advancing such weak and ineffective rules. The explanation lies in the rules' history, as confirmed by extensive public records obtained from the EMC. We are sharing this letter to ensure that every member of the commission understands how these rules came about.

I. These polluter-written rules will not protect North Carolinians.

As currently written, the "monitoring and minimization" rules do not actually require dischargers to reduce any of their PFAS or 1,4-dioxane pollution. Instead, dischargers only need to take a few water samples and write a plan. There are no consequences or penalties if the plan fails to cut pollution—even if the polluter ***increases*** its toxic chemical discharges.[7] And if some of these plans are incorporated into permits, they remain meaningless if the plans themselves are toothless. Because the rules do not require the plans to reduce a single ounce of PFAS or 1,4-dioxane, these provisions ring hollow.[8]

Even under a generous reading of the rules, they are unnecessary and will significantly delay protections for North Carolina families. The Department already has the authority to require monitoring and minimization,[9] and the Clean Water Act already requires dischargers to disclose all pollutants in their wastewater, including PFAS and 1,4-dioxane.[10] The rules are thus

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[7] *See* Proposed 15A N.C. Admin. Code 02H .0923(f)(5) (explaining that significant industrial users must merely document increases in PFOA, PFOS, or GenX); Proposed 15A N.C. Admin. Code 02B .0512(f)(5) (same for direct dischargers); Proposed 15A N.C. Admin. Code 02H .0924(f)(5) (explaining that significant industrial users must merely document increases in 1,4-dioxane); Proposed 15A N.C. Admin. Code 2B .0513(f)(5) (same for direct dischargers).

[8] *See* Proposed 15A N.C. Admin. Code 02B .0512(f)(4); Proposed 15A N.C. Admin. Code 02B .0513(f)(4); *contra* N.C. EMC, November 2025 EMC WQC Meeting, YouTube, at 39:21–40:00, https://www.youtube.com/watch?v=ZTxrx6UnAGc (discussion by EMC counsel regarding efficacy of the rules).

[9] *See, e.g.*, N.C. Gen. Stat. § 143-215.1(b)(4); 15A N.C. Admin. Code 02H .0112(b)(1); 15A N.C. Admin. Code 02H .0117(a), (c); *see also* Memorandum from Radhika Fox, U.S. EPA, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), at 2–5, https://perma.cc/8YUE-BLU4 (explaining that state agencies can and should implement monitoring requirements, source reduction elements, and permit limits to address PFAS pollution from wastewater plants and industries).

[10] *Piney Run Pres. Ass'n v. Cnty. Comm'rs of Carroll Cnty.*, 268 F.3d 255, 268 (4th Cir. 2001); *S. Appalachian Mountain Stewards v. A & G Coal Corp.*, 758 F.3d 560, 564–65 (4th Cir. 2014); 15A N.C. Admin. Code 02H .0105(j); *see also* N.C. DEQ, *NPDES Individual Permit Applications*,

redundant—and that matters because they will inevitably slow down the Department's progress on addressing these chemicals.

In many ways, the rules are a significant step backwards from what the Department is already doing. The Department already requires multiple cities and industries to monitor PFAS and 1,4-dioxane—and to do so far more comprehensively than these rules require. The current monitoring is more frequent,[11] and it covers far more compounds than the three included in the proposed PFAS rules.[12] Moreover, the Department already possesses much of the data that the rules seek to collect. The Department has been collecting data on 1,4-dioxane sources since at

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https://www.deq.nc.gov/about/divisions/water-resources/water-quality-permitting/npdes-wastewater/npdes-permitting-process/npdes-individual-permit-applications (last visited Dec. 9, 2025)

[11] For example, most, if not all, permittees known or likely to discharge 1,4-dioxane monitor and report 1,4-dioxane levels on a weekly or monthly basis—far more frequently than the rules anticipate. *See, e.g.*, City of Greensboro, Discharge Monitoring Report NC0047384 (Oct. 2025) (weekly 1,4-dioxane reporting); City of Asheboro, Discharge Monitoring Report NC0026123 (Oct. 2025) (weekly 1,4-dioxane reporting); City of Reidsville, Discharge Monitoring Report NC0024881 (Oct. 2025) (weekly 1,4-dioxane reporting); City of High Point, Discharge Monitoring Report NC0024210 (Oct. 2025) (weekly 1,4-dioxane reporting); City of Burlington – Eastside, Discharge Monitoring Report NC0023868 (Oct. 2025) (monthly 1,4- dioxane reporting); City of Burlington – Southside, Discharge Monitoring Report NC0023876 (Oct. 2025) (more than weekly 1,4-dioxane reporting); City of Sanford, Discharge Monitoring Report NC0024147 (Oct. 2025) (monthly 1,4-dioxane reporting); Alpek Polyester, Discharge Monitoring Report NC0003719 (Oct. 2025) (monthly 1,4-dioxane reporting); Brenntag/Greensboro Remediation, Discharge Monitoring Report NC0078000 (Oct. 2025) (monthly 1,4-dioxane reporting); City of Lumberton, Discharge Monitoring Report NC0024571 (Sept. 2025) (monthly 1,4-dioxane reporting); McAlpine Creek WWMF, Discharge Monitoring Report NC0024970 (Oct. 2025) (monthly 1,4-dioxane reporting).

And many wastewater plants have quarterly monitoring requirements for PFAS. *See, e.g.*, DEQ, Final NPDES Permit Renewal Permit NC0020338, Yadkinville WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020427, Rockingham WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020591, Third Creek WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020605, Tarboro WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020664, Spindale WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020737, Pilot Creek WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0021121, Mount Airy WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0021156, Mount Holly WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0021181, Belmont WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0021717, Wilkesboro WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0020737, Durham WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0023949, Goldsboro WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024571, Lumberton WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024911, French Broad River WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024937, Charlotte-Sugar Creek WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024945, Irwin Creek WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0024970, McAlpine Creek WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0025534, Hendersonville WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0026646, Pilot Mountain WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0030210, Mallard Creek WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0030716, Central Johnston County WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0037834, Archie Elledge WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0043176, Black River WWTP (quarterly PFAS monitoring); DEQ, Final NPDES Permit Renewal Permit NC0089630, Joe C Stowe Jr. Regional WRRF (quarterly PFAS monitoring).

[12] *See e.g.*, N.C. DEQ, Final NPDES Permit Renewal Permit NC0024970, McAlpine Creek WWTP, at 12 (requiring monitoring for "all target analytes" under draft analytical method 1633, which includes 40 different PFAS). The additional permits cited in note 11 contain similar or identical requirements.

least 2014 and on PFAS sources since at least 2018.[13] Gathering that information has allowed the Department to identify the known and likely sources of toxic chemical pollution across our state.[14] For example, in 2015 the Department identified leading sources of 1,4-dioxane as the wastewater plants in Asheboro, Greensboro, and Reidsville.[15] And last month, the Department presented to the EMC that it has collected influent, effluent, and biosolids samples from different wastewater utilities and used that information to identify those with high PFAS concentrations.[16] These identified wastewater plants are paid to accept PFAS and 1,4-dioxane laden waste from industries. Because the wastewater plants cannot remove the chemicals, PFAS and 1,4-dioxane flow through the utility and into downstream drinking water sources.

After nearly a decade of studying this pollution, now is not the time to spend years longer on sampling and planning. But that is exactly what will happen under these rules. They will take us back to square one and it will be years before communities see any relief—if at all. The rules give dischargers five months to begin collecting their first rounds of sampling, nearly two years before they must begin preparing a plan, and well over three years before industry must begin implementing its plan.[17] (And again, nothing in the rules requires the plans to result in pollution reductions.) The rules are not an interim step towards controlling toxic chemicals. They set North Carolina's progress pollution back nearly a decade.

Beyond the delay, the rules could create serious roadblocks for the Department and citizens to enforce existing rules designed to protect water quality. Polluters are quick to invoke rules like these as a defense to any effort to control their ongoing pollution.[18] Industry and wastewater utilities will treat these rules as a ceiling and will argue that neither the Department nor anyone else can require them to do more than monitor and put together empty plans, even when the Clean Water Act and North Carolina law demand more.

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[13] *See, e.g.*, N.C. DEQ, 1,4-Dioxane in the Cape Fear River Basin of North Carolina: An Initial Screening and Source Identification Study (Jan. 25, 2016), at 2–3, https://perma.cc/G6YG-VC4N [DEQ, 2016 1,4-Dioxane Study]; N.C. DEQ, Cape Fear River Basin WWTP PFAS and 1,4-Dioxane Sampling (2019), https://perma.cc/6MGQ-DM9J; N.C. DEQ, Cape Fear River Basin Industrial PFAS and 1,4-Dioxane Sampling (2020), https://perma.cc/9GEN-KDRA; *Surface Water Sampling for Emerging Compounds*, N.C. DEQ, https://ncdenr.maps.arcgis.com/apps/dashboards/d20ef253863b432db0aceaa510d7feda (last visited Dec. 8, 2025); *Emerging Compound Facility Sampling*, N.C. DEQ, https://ncdenr.maps.arcgis.com/apps/instant/attachmentviewer/index.html?appid=ed308373c97e4a23a29210fa53a3d404 (last visited Dec. 8, 2025); N.C. DEQ, Identification of Select Emerging Compounds in Public Water Supply Reservoirs in the Cape Fear, New and Watauga River Basins (Apr. 1, 2019), https://www.deq.nc.gov/documents/files/ec/identification-select-emerging-compounds-public-water/download; *see also Managing Emerging Compounds in Water*, N.C. DEQ, https://www.deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water (last visited Dec. 8, 2025).

[14] *See Cape Fear River Basin 1,4-Dioxane Wastewater Discharge Data*, N.C. DEQ, https://www.deq.nc.gov/cape-fear-river-basin-14-dioxane-wastewater-discharge-data (last visited Dec. 8, 2025); *Emerging Compound Facility Sampling*, *supra* note 13; Cape Fear River Basin WWTP PFAS and 1,4-Dioxane Sampling, *supra* note 13; Cape Fear River Basin Industrial PFAS and 1,4-Dioxane Sampling, *supra* note 13.

[15] DEQ, 2016 1,4-Dioxane Study, *supra* note 13, at 1, 9–10; N.C. DEQ, 1,4-Dioxane Monitoring in the Cape Fear River Basin of North Carolina (Feb. 22, 2017), at 11–12, https://perma.cc/L5QP-SUHW, *see also* Chad Ham et al., Concerns Regarding 1,4-Dioxane in The Water & Wastewater Industry (Dec. 11, 2015), at slide 12–13, https://perma.cc/HU3E-XNYR.

[16] N.C. DEQ, Biosolids Study: EMC Summary (Nov. 13, 2025), https://perma.cc/T8J5-WENW.

[17] *See* Proposed 15A N.C. Admin. Code 02B .0512(d), (f); Proposed 15A N.C. Admin. Code 02H .0923(d), (f); Proposed 15A N.C. Admin. Code 02B .0513(d), (f); Proposed 15A N.C. Admin. Code 02H .0924(d), (f).

[18] *See, e.g.*, Memorandum in Support of Motion to Dismiss, *Winyah Rivers Alliance v. Active Energy Renewable Power, LLC*, 7:21-CV-00043-D (June 28, 2022), at 26–30, https://perma.cc/UJG9-AZUL.

It doesn't need to be this way. Because of the agency's extensive history tracking those who release PFAS and 1,4-dioxane into our environment, the Department is well-prepared to move forward with protective water quality standards. The agency also understands, from years of working with facilities, that dischargers do not voluntarily reduce their pollution,[19] so setting statewide standards with defined limits is the surest, most reliable way to achieve pollution reductions. The EMC's decision to block the Department from pursuing these standards and instead send the agency backwards in time is incredibly troubling, particularly given how that decision was made.

II. The history of the PFAS rules.

In July 2023, the Department began the process of adopting surface water quality standards for eight PFAS.[20] The Department went through all the necessary steps—it collected extensive data,[21] responded to a wide-range of questions from the EMC and stakeholder groups,[22] and prepared a 214-page fiscal note that was certified by the Office of State Budget Management.[23] The agency was poised to proceed to the full EMC, but certain members on the water quality committee prevented the Department from doing so at the request of polluters.

After the Department spent more than a year compiling information to support the PFAS water quality standards, the North Carolina Chamber of Commerce sent a letter to the EMC on September 5, 2024 citing vague and unsupported concerns with the "underlying science" and "workability" of the standards.[24] The next day, the North Carolina Water Quality Association ("NCWQA")—a group of wastewater utilities—sent a letter to the EMC expressing unease with the water quality standards and asking the EMC to change course and adopt a rule that only requires monitoring and voluntary source reduction.[25] Members of NCWQA are some of the leading sources of PFAS and 1,4-dioxane in the entire state.[26]

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[19] *See* DEQ, PFAS Standards Fiscal Note, *supra* note 2, at 56 ("To date, there are limited examples of industry being responsible and voluntarily treating PFAS at the source and preventing the discharge of PFAS to the environment or disclosing their presence of these compounds.").

[20] N.C. DEQ, Introduction to the 2023-2025 Surface Water Standards Triennial Review & PFAS Rulemakings (July 12, 2023), https://perma.cc/C9NB-A8X6.

[21] *See, e.g.*, N.C. DEQ, PFAS Water Quality Standards: Toxicological Summary Information (Nov. 9, 2023) (summarizing toxicological data that the Department collected to support standard development), https://perma.cc/G4H4-JQ68; N.C. DEQ, Potential Affected Source Types – Surface Water Quality Standards (Nov. 9, 2023) (summarizing how standards would impact industrial and municipal dischargers across the state), https://perma.cc/BL4A-M6LY; N.C. DEQ, NC PFAS Rulemaking Proposal Attachment A: Toxicological Summary Information and Derivation of Surface Water Quality Numerical Standards (June 24, 2024) (containing full description of toxicological data, how standards would be implemented, the expected costs and benefits to industry, the public, and the environment, and a summary of the affected industrial and municipal dischargers), https://perma.cc/9TC7-6J6U.

[22] *See, e.g.*, N.C. DEQ, Summary of Water Quality Committee Comments on 02B PFAS Rulemaking Presentation (Aug. 29, 2024), https://perma.cc/Y3GR-VABT; N.C. DEQ, Water Quality Committee Surface Water Standards (Aug. 29, 2024) (answers to written questions compiled by Steve Keen), https://perma.cc/QTV3-4VK2.

[23] DEQ, PFAS Standards Fiscal Note, *supra* note 2.

[24] Letter from N.C. Chamber of Commerce et al. to JD Solomon & Steve Keen, N.C. EMC (Sept. 5, 2024), https://perma.cc/9HJV-PHDN.

[25] Letter from Paul Calamita, Aqua Law, to JD Solomon, N.C. EMC (Sept. 6, 2024), https://perma.cc/5MGN-TUXW.

[26] *Compare Membership*, N.C. Water Quality Association, https://ncwqa.com/membership/ (last visited Dec. 8, 2025), *with Cape Fear River Basin 1,4-Dioxane Wastewater Discharge Data*, *supra* note 14 (listing top 1,4-dioxane

Following receipt of the opposition letters, the water quality committee, at its September 2024 meeting, tabled the Department's PFAS water quality standards indefinitely and ordered the agency to start over—this time preparing a rule involving only monitoring and minimization.[27]

Over the next several months, the Department asked the water quality committee what they would like to see in a monitoring and minimization rule—specifically asking the committee how the rule would ensure that polluters actually *reduce* their pollution. Knowing that these conversations were occurring, in December 2024, NCWQA sent an email to the Department arguing that mandating source reduction was akin to setting water quality standards and falsely stating that industrial reductions were unnecessary because "the vast majority of the PFAS load statewide coming from [wastewater plants] is due to domestic loadings."[28] State, national, and international data shows this is false—wastewater plants that receive industrial waste have far higher levels of PFAS than those who only receive domestic waste.[29] NCWQA ultimately asked the Department to delay presenting a rule and proposed a different version for the Department to consider.[30]

The water quality committee voted to have a special meeting on February 25, 2025 to discuss a plan for the monitoring and minimization approach.[31] In advance of the special meeting, the Department prepared a presentation explaining that the agency needed feedback from the water quality committee on how polluters would be obligated to reduce their pollution under the rule.[32] The morning of the meeting, Chair Solomon sent an email to Committee-Chair Keen, Commissioner Ellison, and Commissioner Baumgartner expressing frustration with the Department's attempt to write a rule that required polluters to control their pollution.[33] Shortly after Chair Solomon's email was sent, Committee-Chair Keen cancelled the special meeting.[34]

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dischargers in the Cape Fear River Basin), *and* Cape Fear River Basin WWTP PFAS and 1,4-Dioxane Sampling, *supra* note 13 (listing some of the top PFAS dischargers in the Cape Fear River Basin).

[27] N.C. EMC, EMC WQC Committee Meeting, YouTube (Sept. 16, 2024), at 2:58:53–2:59:40, https://www.youtube.com/watch?v=4A2lqYdy2yQ&list=PLsBpAjvXXIH0YXv94qvh-fsvd4lSXSaNA&index=9&t=10527s ("Move to direct the department to . . . propose a draft rule and a draft RIA to establish monitoring for every industrial and NPDES permit and require PFAS source reduction plans as part of every industrial and SEIU [sic] municipal . . . pretreatment program."); N.C. EMC, Water Quality Committee September 11, 2024 Meeting Minutes (2024), https://perma.cc/9XX9-YVR2.

[28] Email from Paul Calamita, Aqua Law, to Julie Grzyb, N.C. DEQ (Dec. 29, 2024), https://perma.cc/9LJA-4F3Q.

[29] *See, e.g.* N.C. DEQ, Biosolids Study: EMC Summary, *supra* note 16, at slide 7; 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; 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.

[30] Email from Paul Calamita, Aqua Law, to Julie Grzyb, N.C. DEQ (Dec. 31, 2024), https://perma.cc/9LJA-4F3Q.

[31] N.C. EMC, Water Quality Committee January 8, 2025 Meeting Minutes (2025), at 5–6, https://perma.cc/26EQ-A6PU.

[32] N.C. DEQ, Continuation of PFAS Source Reduction Concept (Feb. 25, 2025), at slides 3, 5, https://perma.cc/H6VN-H83E.

[33] Email from JD Solomon, N.C. EMC, to Steve Keen et al., N.C. EMC (Feb. 25, 2025), https://perma.cc/T5X3-WNAM ("[I] see no need for required % reductions in this phase.").

[34] N.C. DEQ, *N.C. Environmental Management Commission Water Quality Committee Special Meeting Canceled* (Feb. 25, 2025), https://perma.cc/CW8Q-2LQH.

In March 2025, the water quality committee reconvened to discuss a draft version of the PFAS monitoring and minimization rule. At the beginning of the meeting, Committee-Chair Keen stated that NCWQA wrote 80 percent of the rule and that the Department was asked to simply "fill in the blanks."[35] During the meeting, commissioners emphasized that the rule did not need to require reductions of pollution because it "is not a treatment rule,"[36] and that they "weren't getting into the reduction business with this rule."[37] Adding insult to injury, the committee discussed ways to make the rule even weaker—pulling from additional recommendations that NCWQA sent Chair Solomon and Committee-Chair Keen *the day before the meeting*.[38] In that correspondence, counsel for NCWQA recommended (and the committee ultimately ordered) that the Department reduce the rule's sampling requirements from all PFAS to only PFOA, PFOS, and GenX in order to "minimize the reporting requirements" for industry and wastewater plants.[39] In practice, this means that dischargers will receive a lab report showing the levels of dozens of PFAS compounds, and will then *redact all but* the PFOA, PFOS, and GenX data. This does not reduce work for the discharger but increases it,[40] while hiding valuable and readily available information about the discharger's pollution from the agency and the public.

In January, the EMC will be presented with a set of PFAS rules that are far removed from what the Department intended. This is no surprise because they were written by polluters and intentionally crafted to ensure that neither industry nor wastewater plants have to do *anything* about their toxic chemical pollution. Not only that, but the Department and the public will be denied valuable information because the water quality committee bowed down to polluters that wanted to keep the public in the dark about dozens of PFAS chemicals being released into our state's rivers and drinking water sources.

III. The history of the 1,4-dioxane rules.

The 1,4-dioxane rules likewise have a fraught history. In 2015, the Department learned that North Carolina has some of the highest 1,4-dioxane pollution in the country.[41] In 2021, after years of monitoring and source identification, the Department attempted to adopt numeric water quality standards for the toxic chemical. Prior to that rulemaking, the Department had regulated 1,4-dioxane under the EPA-approved narrative Toxic Substances Standard, 15A N.C. Admin. Code 2B.0208, limiting concentrations of the chemical to 0.35 ppb in drinking water sources and

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[35] N.C. EMC, EMC Water Quality Committee Meeting, YouTube (Mar. 12, 2025), at 21:14–21:21, https://www.youtube.com/watch?v=Z7KhUJgY4eE&list=PLsBpAjvXXIH0ZhXbYwoq4-yn6wcGGt--s&index=17&t=4230s.

[36] *Id.* at 34:03 (Ellison explaining the rule).

[37] *Id.* at 1:08:49 (Ellison explaining the rule).

[38] Email from Paul Calamita, Aqua Law, to Steve Keen et al., N.C. EMC (Mar. 11, 2025), https://perma.cc/UJ3S-NX82.

[39] *Id.*; N.C. EMC, EMC March Water Quality Committee Meeting, *supra* note 35, at 46:17–46:43 (Ellison explaining that collecting and reporting information on all compounds will be a burden on industry).

[40] The discharger will be paying for a full suite of PFAS sampling, receive a lab report with dozens of PFAS detected, and then have to identify and individually report the GenX, PFOA, and PFOS levels detected – short of saving industry money, this change could actually cost them more time and resources.

[41] DEQ, 2016 1,4-Dioxane Study, *supra* note 13, at 2.

80 ppb in non-water supplies.[42] Noting that numeric standards would allow the agency to more efficiently control 1,4-dioxane while providing regulatory certainty to permittees, the Department sought to codify numeric water quality standards identical to the values already used by the agency (0.35 and 80 ppb).[43] These numeric standards would also provide clarity because polluters have challenged the agency's reliance on the narrative standard in court and the litigation is ongoing.[44] Ultimately, after the Department spent months preparing the rule, reviewing public comments, and obtaining approval of the fiscal analysis by the Office of State and Budget Management, the EMC adopted the agency's 1,4-dioxane standards in 2022.[45] But a 1,4-dioxane polluter made sure those standards were never put into place.

The final step in North Carolina's rulemaking process is to send the rule to the Rules Review Commission. That commission is limited to reviewing rules for administrative errors (spelling errors, inconsistencies, etc.), and it is prohibited from reviewing the substance of a rule.[46] Nevertheless, the city of Reidsville, a member of the NCWQA and known source of 1,4-dioxane, lobbied the Rules Review Commission with misleading arguments that complying with the numeric standards would be costly to wastewater utilities and industry.[47] Although the Office of State and Budget Management had already certified the fiscal analysis for the standards, the Rules Review Commission adopted Reidsville's arguments and blocked the rules from going into effect.[48] Counsel for the Rules Review Commission later thanked counsel for Reidsville for providing him with the justification he was looking for to stonewall the rule.[49]

In November 2023, the EMC filed a lawsuit against the Rules Review Commission for its overreach in blocking the 1,4-dioxane water quality standards.[50] But in February 2024, after the legislature changed the make-up of the EMC, the new commission dismissed the lawsuit, thereby ensuring the numeric 1,4-dioxane standards did not go into place.[51]

The Department tried again. This time, the agency presented the 1,4-dioxane water quality standards as part of the 2023-2025 Triennial Review package. Shortly after the

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[42] The narrative toxic substances standard requires the Department use a translator formula to calculate the level of pollution that can be released to comply with the prohibition against releasing a cancer-causing chemical above the 1-in-1 million cancer risk level. 15A N.C. Admin. Code 2B.0208(a)(2)(B).
[43] *See* N.C. DEQ, Regulatory Impact Analysis: 2020-2022 Triennial Review – Surface Water Quality Standards (2020), at 13–15, https://perma.cc/4J7A-HUSZ.
[44] *See North Carolina Dep't Env't Quality v. City of Asheboro*, 24-CV-032664-910 (N.C. Super. Ct., Wake Cnty. 2024).
[45] N.C. EMC, Report of Proceedings to the Environmental Management Commission on the Proposed Changes to the Surface Water Quality Classifications and Standards For the Protection of Surface Waters Regulations Triennial Review (Mar. 10, 2022), at 55, https://perma.cc/ZP95-3U6C; N.C. EMC, March 10, 2022 – Draft Minutes of the Meeting (Mar. 10, 2022), at 7, https://perma.cc/3QZE-BM7X.
[46] N.C. Gen. Stat. § 150B-21.9(a).
[47] Letter from Patrick Mincey & Robert El-Jaouhari, Cranfill Sumner, to Members of the N.C. Rules Review Commission et al. (Apr. 13, 2022), https://perma.cc/2W42-36VC.
[48] N.C. RRC, RRC Staff Opinion 15A NCAC 02B. 0208, .0212, .0214, .0215, .0216, and .0218 (May 2022), https://perma.cc/2JH5-F45L.
[49] Email from Lawrence Duke, N.C. RRC, to Robert El-Jaouhari, Cranfill Sumner (June 13, 2022), https://perma.cc/9VDH-P3SF.
[50] Complaint, *N.C. Env't Mgmt. Comm'n v. N.C. Rules Rev. Comm'n*, 23-CV-032096-910 (N.C. Super. Ct., Wake Cnty. Nov. 9, 2023), https://perma.cc/99TR-RGJ6.
[51] Notice of Voluntary Dismissal Without Prejudice, *N.C. Env't Mgmt. Comm'n v. N.C. Rules Rev. Comm'n*, 23-CV-032096-910 (N.C. Super. Ct., Wake Cnty. Feb. 16, 2024), https://perma.cc/RG3K-RKQT.

Department announced it would be adopting 1,4-dioxane numeric standards, the cities of Asheboro, Greensboro, and Reidsville (members of NCWQA and the three largest municipal sources of 1,4-dioxane in the state) sent a letter to the EMC urging the commission to delay the 1,4-dioxane standards and offering misleading information regarding the costs of complying with the standards.[52] The three cities argued that in order to comply with the limits, they would have to install extraordinarily expensive treatment technology at the utility itself[53]—entirely ignoring the fact that the wastewater plants have the authority and obligation to make their industrial customers treat or eliminate 1,4-dioxane before it ever reaches the utility.[54]

Nevertheless, over the next several months, the EMC's water quality committee parroted the three cities' arguments,[55] questioned the legitimacy of EPA's health data,[56] suggested the need for cancer studies on human beings before regulating 1,4-dioxane,[57] and ignored the communities worried about drinking water laden with the cancer-causing chemical.[58] The standards were removed from the Triennial Review process in the fall of 2024. Then, in March 2025, after the water quality committee forced the Department to put forth the polluter-written

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[52] Letter from Elijah Williams, City of Greensboro et al., to Members of the N.C. EMC Water Quality Comm. (Mar. 8, 2024), https://perma.cc/F5ZJ-ETTD.

[53] *Id.* at Exhibit A.

[54] 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 that support municipal wastewater plants. Wastewater plants can demand their industries provide information on the pollutants sent to their system. 40 C.F.R. § 403.8(f)(2)(ii); U.S. EPA, Introduction to the National Pretreatment Program (Jun. 2011), https://perma.cc/95VY-S8YU, at 4-3 to 4-4. Once the utility has the information it needs, it has broad authority to: (1) "deny or condition" pollution received from industries, (2) control industrial pollution "through Permit, order or similar means," and (3) require "the installation of technology." 40 C.F.R. § 403.8(f)(1). Wastewater plants can also implement local limits to further control industrial pollution. *Id.* § 403.5(c).

[55] *See, e.g.*, N.C. EMC, Water Quality Committee, YouTube (Mar. 13, 2024), at 1:14:00– 1:17:00 (questioning the costs associated with the rule), https://www.youtube.com/watch?v=L1FCj9LKwn8&list=PLsBpAjvXXIH0YXv94qvhfsvd4lSXSaNA&index=16 ; *id.* at 1:29:00–1:34:45 (discussing the cities' cost arguments, raising concerns with the fiscal impacts of adopting the 1,4-dioxane numeric standards, adopting the cities' arguments that the agency's use of the narrative standard as an economic baseline was improper); *id.* at 1:45:28–1:45:52 ("The costs are massive [] no matter how you look at it for the treatment plants . . . and I think we owe it to them . . . to make sure we get this rule right.").

[56] *See, e.g.*, *id.* at 1:16:52–1:24:08 (questioning EPA directive to update the bioaccumulation factor used in developing numeric criteria for 1,4-dioxane); *id.* at 1:44:21–1:45:23 ("I would comment that the sound scientific rationale requirement [] is a challenge, I think. We're relying on all kinds of EPA numbers and [] this is the same EPA that changed the nationwide requirements for lead in drinking water based solely on the research of Dr. Herbert Needleman whose research was totally panned because it turned out he falsified all his data . . . . This is the same EPA that fed people diesel fumes right up the road in RTP and [] there are recently published reports of top tier peer-reviewed journals that find almost 50 percent of those studies cannot be replicated and/or the data were bogus . . . . As far as 1,4-dioxane goes, I think we need to do a lot more homework before we put these standards into a rule.").

[57] *See* N.C. EMC, Water Quality Committee, YouTube (May 8, 2024), at 2:17:01– 2:18:23 https://www.youtube.com/watch?v=FtXZSa4Me5k&list=PLsBpAjvXXIH0YXv94qvhfsvd4lSXSaNA&index=10 (Commissioner Ellison asking "are there any new epidemiological studies on 1,4-dioxane in humans" and continuing to push when Assistant Secretary Masemore tried to explain EPA and leading scientific organizations do not expose humans to cancer causing chemicals).

[58] *See* Letter from Sean M. Sullivan, Willams Mullen, to Members of the N.C. EMC Water Quality Comm. (May 1, 2024), https://perma.cc/7V7Y-4ZA6.

PFAS rules, the committee told the Department to abandon 1,4-dioxane standards and instead prepare "monitoring and minimization" rules that mirrored the empty PFAS rules.[59]

Like the PFAS rules that will be before the EMC in January, the 1,4-dioxane rules are written by the regulated community. They represent a polluter wish-list, and they do not require dischargers to take *any* steps to reduce their toxic chemical pollution. These rules are insulting to the Department which has spent more than *ten years* tracking and identifying the sources of 1,4-dioxane across our state and has attempted to limit discharges through multiple means, including through discharge permits[60] and special orders by consent.[61] And they are insulting to the communities who have suffered from exposure to this pollution for decades.

IV. North Carolinians deserve better.

More than four million North Carolinians—nearly half the State's population—drink water sourced from surface waters and rely on drinking water utilities for safe drinking water.[62] More than one million of those people drink 1,4-dioxane-laden water, and at least 3.5 million drink water with unsafe levels of PFAS.[63] Failing to require industries and wastewater plants to control their PFAS and 1,4-dioxane pollution has serious consequences for these communities and the drinking water utilities that serve them. As the former Department Secretary Elizabeth Biser said, without strong rules making industry pay to remove PFAS at the source, "the entire burden" of removing industrial chemicals falls on public water system customers.[64]

The Department has calculated that continued PFAS pollution will cost downstream drinking water utilities more than $430 million in treatment technology expenses[65]—a cost that utilities must bear to comply with federal drinking water standards if upstream pollution is not controlled.[66] Like PFAS, it is exceedingly expensive to remove 1,4-dioxane from downstream drinking water. For drinking water utilities like the Cape Fear Public Utilities Authority that serve large areas, the price of installing 1,4-dioxane treatment could cost more than $23 million, with operating costs tacking on an additional $1.6 million each year.[67] Ongoing toxic chemical pollution also threatens to decrease property values and increase health expenses. As the

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[59] N.C. EMC, Water Quality Committee March 12, 2025 Meeting Minutes (2025), https://perma.cc/99JX-UVE6 (explaining the committee "[d]irected DEQ staff to complete the 1,4-dioxane rule as discussed during the meeting for monitoring and minimization plan for the May WQC meeting").

[60] *See* N.C. DEQ, Final NPDES Permit Renewal Permit NC0026123 Asheboro WWTP (Aug. 21, 2023) (final permit establishing 1,4-dioxane permit limits); N.C. DEQ, Final NPDES Permit NC0003719 Alpek Polyester USA, LLC (Feb. 1, 2024). Unfortunately, the Asheboro permit was challenged by the city of Asheboro and never went into effect, and the Alpek permit was withdrawn.

[61] N.C. EMC, Amended Special Order by Consent, EMC SOC WQ S19-010 (Nov. 22, 2021), https://perma.cc/VKU8-6TYD.

[62] *Drinking Water Protection Program*, N.C. DEQ, https://www.deq.nc.gov/about/divisions/water-resources/drinking-water/drinking-water-protection-program (last visited Dec. 9, 2025).

[63] *See* discussion *supra* notes 2–3.

[64] Letter from Elizabeth Biser, N.C. DEQ, to Gary Salamido, N.C. Chamber of Com. (May 1, 2024), https://perma.cc/EQF4-7L4T; *see also* N.C. DEQ, *Memo: DEQ Secretary Dispels Misinformation and Urges EMC to Take Action* (May 2, 2024), https://perma.cc/VG2K-866J.

[65] DEQ, PFAS Standards Fiscal Note, *supra* note 2, at 53 (summarizing benefits of implementing numeric PFAS water quality standards for downstream drinking water utilities).

[66] PFAS National Primary Drinking Water Regulation, 89 Fed. Reg. 32532, 32533 (Apr. 26, 2024); DEQ, PFAS Standards Fiscal Note, *supra* note 2, at 8.

[67] Letter from Kenneth Waldroup, Cape Fear Pub. Util. Auth., to JD Solomon, N.C. EMC & Richard Rogers, N.C. DEQ (Nov. 7, 2024), https://perma.cc/S2FJ-R67T.

Department made clear, the PFAS standards alone (which were rejected by the EMC) would have saved the state nearly $10 billion over 36 years by preventing illness, reducing water treatment costs, and preserving property values.[68] It is cheaper and far more equitable to remove toxic chemicals at industrial sources.[69]

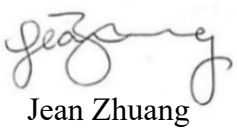
V. Conclusion

North Carolina families, businesses, schools, and communities deserve action now. It is unethical to ask them to stand by and wait indefinitely while *hoping* that industry will voluntarily reduce its pollution. The EMC has the information and authority to adopt health protective water quality standards now. It must abandon these polluter-written "monitoring and minimization" rules and promptly adopt water quality standards for PFAS and 1,4-dioxane.

Thank you for your attention to this critical matter. Please contact us at *hnelson@selc.org* or at 919-967-1450 if you would like to discuss the contents of this letter.

Sincerely,

Hannah Nelson



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North Carolina Sierra Club, Erin Carey, *erin.carey@sierraclub.org*
NRDC, Drew Ball, *dball@nrdc.org*
Toxic Free NC, Kendall Wimberley, *kendall@toxicfreenc.org*
Winyah Rivers Alliance – Lumber Riverkeeper, Jeff Currie, *lumberrk@winyahrivers.org*

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Richard Rogers, Director of Division of Water Resources, *Richard.rogers@deq.nc.gov*

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[68] DEQ, PFAS Standards Fiscal Note, *supra* note 2, at 53.
[69] N.C. Collaboratory, Treatment Technologies & Implementation Costs to Comply with Proposed 1,4-Dioxane Discharge Limits (Aug. 28, 2024), at 93–94, https://perma.cc/ERF4-TS3Y.

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ATTACHMENT 1

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Telephone 919-967-1450
Facsimile 919-929-9421

July 8, 2025

Via E-Mail
J.D. Solomon, Chair
North Carolina Environmental Management Commission
North Carolina Department of Environmental Quality
1617 Mail Service Center
Raleigh, NC 27699-1617
Jd.solomonemc@deq.nc.gov

Re: Opposition to Polluter-Written PFAS & 1,4-Dioxane Rules

Dear Chair Solomon and Members of the Environmental Management Commission:

The Southern Environmental Law Center, on behalf of the following organizations, writes to express our strong opposition to the proposed rules regarding per- and polyfluoroalkyl substances ("PFAS") and 1,4-dioxane that may be considered by the Water Quality Committee on July 9, 2025 or at future meetings.

Cape Fear River Watch
Clean Cape Fear
Clean Water for North Carolina
Environmental Justice Community Action Network
Grays Creek Residents United Against PFAS in our Wells and Rivers
Haw River Assembly
NC League of Conservation Voters
NC Sierra Club
North Carolina Stop GenX in Our Water
NRDC
Toxic Free NC

As the Commission knows, these rules fall far short of what is needed to meaningfully reduce toxic chemical pollution in North Carolina. If adopted, they could allow over 500 industrial facilities across North Carolina to continue to pollute our drinking water indefinitely. Under the proposed rules, all that polluters must do is collect a handful of water quality samples and prepare a plan for addressing their pollution. But the rules impose no consequences or penalties if a polluter falls short of its plan, even if it *increases* their toxic chemical discharges.

These rules do not protect the millions of North Carolinians currently exposed to PFAS and 1,4-dioxane. In fact, they risk doing more harm than good by creating the illusion of action while enabling continued contamination.

By moving the rules forward, the Commission asks our communities to trust that industries across North Carolina will do the right thing—to hope that they will suddenly volunteer to control their pollution. History tells us that this will not happen. For decades, industries like Chemours have silently polluted the air, soil, groundwater, and drinking water across the state. And despite all the data showing that these toxic chemicals are harming North Carolina families, polluters have refused to act on their own.

Inaction will not only harm our communities, it will also be costly. The state's Department of Environmental Quality itself has estimated that ongoing PFAS pollution could cost our drinking water utilities hundreds of millions in treatment expenses, lead to 10,000 additional deaths, and cause a loss of $1.5 billion in property values.[1] We do not have time to *hope* that polluters will do the right thing. We need the Environmental Management Commission to do what it is legally required to do—pass rules that protect people, not polluters.

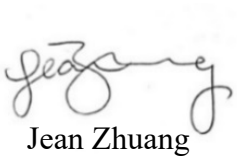
It is not too late to change course. Over the past several years, the Department of Environmental Quality developed science-based, protective water quality standards for PFAS and 1,4-dioxane that would require polluters to treat their waste and reduce toxic discharges.[2] As the Department made clear, the PFAS standards alone would have saved the state nearly $10 billion over 36 years by preventing illness, reducing water treatment costs, and preserving property values.[3] The Environmental Management Commission has the information, data, and authority it needs to revisit the Department's materials and move forward with a set of rules that meaningfully protect the people of North Carolina.

We urge you to reject the polluter-written PFAS and 1,4-dioxane rules and instead adopt enforceable standards that require industries and wastewater treatment plants to reduce PFAS and 1,4-dioxane discharges immediately. North Carolina families deserve clean, safe drinking water—not regulations that protect polluters at their expense.

Thank you for your attention to this critical matter. Please contact us at *hnelson@selc.org* and *jzhuang@selc.org* or at 919-967-1450 if you would like to discuss the contents of this letter.

Sincerely,

Hannah Nelson



Jean Zhuang

cc:

Reid Wilson, Secretary of the Department of Environmental Quality, *DEQSecretary@deq.nc.gov*
Sushma Masemore, Deputy Secretary for Environment, *Sushma.masemore@deq.nc.gov*
Richard Rogers, Director of Division of Water Resources, *Richard.rogers@deq.nc.gov*

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[1] N.C. DEQ, Fiscal Note for Adoption Amendment of 15A NCAC 02B .0200 and 15A NCAC 02B .0400m (July 10, 2024), https://www.osbm.nc.gov/documents/files/DEQ_2024-07-10, at 5, 6, 51–52.
[2] *Id.* at 51–53.
[3] *Id.* at 53.

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NC Sierra Club, Erin Carey, *erin.carey@sierraclub.org*
North Carolina Stop GenX in Our Water, Beth Markesino, *bethamarkesino@gmail.com*
NRDC, Drew Ball, *dball@nrdc.org*
Toxic Free NC, Alexis Luckey, *alexis@toxicfreenc.org*

ATTACHMENT C

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January 7, 2026

Via E-Mail
John D. (JD) Solomon, Chair
North Carolina Environmental Management Commission
North Carolina Department of Environmental Quality
1617 Mail Service Center
Raleigh, NC 27699-1617
Jd.solomonemc@deq.nc.gov

Re: Correcting Errors Regarding Proposed PFAS & 1,4-Dioxane Rules

Dear Chair Solomon and Members of the Environmental Management Commission:

It has come to our attention that on January 4th, the North Carolina Water Quality Association ("NCWQA" or "association") sent a letter to the Environmental Management Commission ("EMC") concerning the proposed per- and polyfluoroalkyl substances ("PFAS") and 1,4-dioxane monitoring and minimization rules that the full commission will consider on January 8, 2026.[1] The letter purports to respond to one we sent to the EMC on December 10, 2025.[2] NCWQA's letter contains numerous inaccuracies, which we address below.

First, NCWQA's letter suggests that the North Carolina Department of Environmental Quality ("the Department") is currently exceeding its authority by requiring dischargers to monitor for PFAS and 1,4-dioxane.[3] It is wrong. Federal and state law clearly give the Department authority to monitor and control PFAS and 1,4-dioxane pollution.[4] Similar authority exists for wastewater treatment plants to control pollution coming from industrial facilities.[5]

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[1] Letter from Paul Calamita, NCWQA, to JD Solomon EMC (Jan. 4, 2026), https://perma.cc/ZQX6-4D5X [hereinafter NCWQA Letter].
[2] Letter from Hannah Nelson and Jean Zhuang, SELC, to JD Solomon, EMC (Dec. 10, 2025), https://perma.cc/Q5MY-V67F.
[3] NCWQA Letter, *supra* note 1, at 2.
[4] *See, e.g.*, N.C. Gen. Stat. § 143-215.1(b)(4) (authority to "grant a permit with such conditions attached as… necessary to achieve the purposes of this Article"); N.C. Gen. Stat. § 143-215.3(a)(2) (authority to conduct investigations and require sampling to assess water or air conditions); 15A N.C. Admin. Code 02H .0112(b)(1) (authority to "issue a permit containing such conditions as are necessary to effectuate the purposes of G.S. 143-215.1 and G.S. 143-215.67"); 15A N.C. Admin. Code 02H .0112(c) (explaining no permit may be issued unless the permit will ensure compliance with water quality laws); 15A N.C. Admin. Code 02H .0117(a), (c) (authority to investigate and require the sampling of any discharge of pollutants); 40 C.F.R. § 122.43 (authority to "establish conditions, as required on a case-by-case basis, to provide for and ensure compliance with all applicable requirements of CWA and regulations" including conditions for monitoring); 40 C.F.R. § 122.44 (authority to set limits based on technology and to protect water quality); 40 C.F.R. § 122.48 (stating that all permits all include monitoring type, intervals, and frequency); *see also* Memorandum from Radhika Fox, U.S. EPA, Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs (Dec. 5, 2022), at 2–5, https://perma.cc/8YUE-BLU4 (explaining that state agencies can and should implement monitoring requirements, source reduction elements, and permit limits to address PFAS pollution from wastewater plants and industries).
[5] *See, e.g.*, 40 C.F.R. § 403.8(f) (listing authority to deny, condition, or approve discharges to the wastewater utility as well as listing authority for sampling, investigating, and identifying sources of pollution discharged to the wastewater utility); 40 C.F.R. § 403.5(d) (explaining local limits and their enforcement as pretreatment standards);

Therefore, contrary to the association's letter, the recent North Carolina Supreme Court decision, *N.C. Department of Environmental Quality v. N.C. Farm Bureau*, is irrelevant. In that case, the Court invalidated three provisions in the swine, poultry, and cattle waste management system general Clean Water Act permit[6]—holding narrowly that those specific conditions were rules of general applicability and should have first gone through rulemaking.[7] Here, the Department has used its authority in *individual*, not general, permits, and the Department's authority is based on rules that have already gone through rulemaking. *N.C. Farm Bureau* is therefore beside the point.

Second, the past ten years show that dischargers do not voluntarily reduce their toxic chemical pollution, including PFAS and 1,4-dioxane. NCWQA cites a single example to support its claim that dischargers will voluntarily minimize their PFAS pollution—but even that solitary example was not voluntary.[8] The city of Burlington, North Carolina reduced the PFAS in its wastewater treatment plant system pursuant to a signed settlement agreement after the Southern Environmental Law Center, representing Haw River Assembly, threatened to sue the city for Clean Water Act violations.[9] Acting under the threat of a federal lawsuit is not voluntary.

On the other hand, there are at least 55 examples of polluters failing to voluntarily eliminate their PFAS and 1,4-dioxane pollution.[10] This includes Chemours' Fayetteville Works Facility, which polluted the drinking water for more than 500,000 North Carolinians for over forty years. Not only did DuPont and Chemours fail to voluntarily reduce their pollution from the site—they intentionally swapped out one toxic chemical (PFOA) with another (GenX), silently creating one of the worst public heath crises in North Carolina's history.[11] As another example, the City of Asheboro (a NCWQA member)—despite public criticism for its decades of 1,4-dioxane pollution—has *increased* its 1,4-dioxane discharges to the highest levels recorded from a

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15A N.C. Admin. Code 02H .0904 (providing the authority and obligations listed in federal pretreatment regulations); 15A N.C. Admin. Code 02H .0905(b) (explaining authority in the pretreatment program including "implementation of compliance activities" like sampling, and updating the sewer use ordinance). Municipal wastewater plants additionally have sewer use ordinances that give the utility authority to control what pollutants, if any, are allowed to be introduced to the wastewater system.

[6] General permits cover multiple dischargers within a certain industry category who, based on the state agency's professional experience or legislative order, have similar operations and pollution discharges. Individual permits are issued on a case-by-case basis to a specific discharger and will control the pollutants identified by that discharger in an individually tailored application. *See NPDES Permit Basics*, U.S. EPA, https://www.epa.gov/npdes/npdes-permit-basics#:~:text=A%20National%20Pollutant%20Discharge%20Elimination,take%20six%20months%20or%20longer

[7] *N.C. Dep't of Env't Quality v. N.C. Farm Bureau Fed'n*, 388 N.C. 366, 379, 921 S.E.2d 121, 130 (2025).

[8] NCWQA Letter, *supra* note 1, at 2.

[9] *See* Memorandum of Agreement Between City of Burlington, North Carolina and Haw River Assembly (Oct. 22, 2020), https://burlingtonnc.gov/DocumentCenter/View/18963/2020-10-22-Burlington-HRA-MOA-signed?bidId=; Settlement Agreement Between City of Burlington, North Carolina and Haw River Assembly (Aug. 1, 2023), https://www.selc.org/wp-content/uploads/2023/08/2023.08.01-Final-Settlement-Agreement-with-Burlington-re-PFAS-attachments-002.pdf; *see also* Notice of Intent to Sue the City of Burlington for Violations of the Clean Water Act and Resource Conservation and Recovery Act (Nov. 7, 2019), https://legacy.uploads.southernenvironment.org/words_docs/2019_11_07_-Notice_of_Intent_-_City_of_Burlington_.pdf.

[10] N.C. DEQ, Fiscal Note for Adoption Amendment of 15A NCAC 02B .0200 and 15A NCAC 02B .0400 (July 27, 2024), at 29, https://perma.cc/6YPA-HUTT [hereinafter DEQ, PFAS Standards Fiscal Note].

[11] Vaughn Hagerty, *Toxin Taints CFPUA Drinking Water*, Star News Online (June 7, 2017), https://www.starnewsonline.com/story/news/environment/2017/06/07/toxin-taints-cfpua-drinking-water/20684831007/.

wastewater plant in the state.[12] Asheboro's ongoing pollution threatens nearly 900,000 North Carolinians downstream. There are dozens more examples. As early as 2018, the Department required more than 35 industries and wastewater plants in the Cape Fear River Basin to sample for PFAS and 1,4-dioxane.[13] NCWQA does not identify a single one of these dischargers that has voluntarily reduced its pollution. Given this history, the Department has thus determined that "there are limited examples of industry being responsible and voluntarily treating PFAS at the source."[14] That is why the Department sought to promulgate water quality standards for PFAS and 1,4-dioxane—standards that NCWQA lobbied against and the EMC has blocked.

Third, NCWQA distorts data to falsely assert that most PFAS pollution in wastewater plants comes from domestic sources.[15] Contrary to the association's letter, the Department itself concluded that wastewater plants receiving domestic-only waste "had consistently lower PFAS" entering and exiting the plant than wastewater plants that receive industrial waste.[16] NCWQA concludes that domestic sources are the problem because it ignores the vast majority of reported PFAS and only looks at a single compound: PFOS.[17] When one considers the full picture—the *total PFAS levels* reported to the Department (56 different compounds)—it is clear where these chemicals are coming from. Whereas domestic-only plants had total PFAS influent levels reaching 112 parts per trillion ("ppt"), influent from industrially impacted plants reached as high as 4,124 ppt—nearly 37 times the level of domestic-only plants.[18] The data not only contradicts NCWQA's assertions, but highlights the dangers of only monitoring one, or a few, PFAS compounds. Limiting investigations to a handful of compounds, as the proposed rules do, shields the many industries that are releasing other types of PFAS.

Recent peer-reviewed research published by Duke University further undercuts NCWQA's letter. As part of the settlement agreement between Haw River Assembly and the city of Burlington, Duke analyzed PFAS levels flowing into the city's wastewater treatment plant from several industries to identify the source of Burlington's PFAS pollution.[19] Burlington's pollution was significant: the city's wastewater discharges reached 33,000 ppt.[20] Downstream, Pittsboro's drinking water reached 850 ppt.[21] And the drinking water supply for Chapel Hill had PFAS levels as high as 2,000 ppt due to the spraying of contaminated sludge from Burlington's

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[12] N.C. DEQ, *Cape Fear River Basin 1,4-Dioxane Wastewater Discharge Data*, https://www.deq.nc.gov/cape-fear-river-basin-14-dioxane-wastewater-discharge-data (last visited Jan. 6, 2026).
[13] N.C. DEQ, Cape Fear River Basin WWTP PFAS and 1,4-Dioxane Sampling (2019), https://perma.cc/6MGQ-DM9J (PFAS effluent levels from 27 wastewater plants); N.C. DEQ, Cape Fear River Basin Industrial PFAS and 1,4-Dioxane Sampling (2020), https://perma.cc/9GEN-KDRA (showing PFAS effluent levels from 9 industries).
[14] *See* DEQ, PFAS Standards Fiscal Note, *supra* note 10, at 56 ("To date, there are limited examples of industry being responsible and voluntarily treating PFAS at the source and preventing the discharge of PFAS to the environment or disclosing their presence of these compounds.").
[15] NCWQA Letter, *supra* note 1, at 3–5.
[16] N.C. DEQ, Biosolids Study: EMC Summary (Nov. 13, 2025), at slides 6–7, https://perma.cc/T8J5-WENW [hereinafter DEQ, Biosolids Study Presentation].
[17] NCWQA Letter, *supra* note 1, at 3–4.
[18] DEQ, Biosolids Study Presentation, *supra* note 16, at slide 6.
[19] 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://pubs.acs.org/doi/10.1021/acs.estlett.5c01014 [hereinafter Duke, Burlington Study]; Memorandum of Agreement Between City of Burlington, North Carolina and Haw River Assembly, *supra* note 9, at 2–3.
[20] Duke, Burlington Study, *supra* note 19, at C.
[21] *Id.*

plant.[22] In order to identify the industrial source of PFAS pollution, researchers at Duke University knew that they could not focus on just one PFAS compound or a few—that this "would lead to significant underestimation of total PFAS loadings."[23] They therefore used a broader analytical method that would more accurately identify total PFAS levels. As a result, Duke was able to pinpoint the source of PFAS: an industrial textile facility releasing levels at 1,370,000 ppt.[24]

Burlington's experience confirms three things. First, that industrial sources of PFAS "far outweigh[] domestic contributions."[25] Second, the scope of the proposed rule—which only considers three PFAS compounds—will not protect North Carolinians. If Duke had only considered three compounds in Burlington, it would not have found the industrial source harming the drinking water for thousands of people downstream. Third, wastewater treatment plants throughout North Carolina could and should be using their authority to control PFAS coming from their industries. Burlington "used its pretreatment authority under the Clean Water Act to require industrial dischargers within the sewershed to reduce or eliminate" their PFAS.[26] But as explained in our prior letter,[27] the proposed rules will do nothing more than get in the way of such progress at other wastewater treatment plants.

Contrary to the association's letter, these rules are not a good step forward for North Carolina. We strongly urge the EMC to change course at this week's meeting and instead adopt health-protective water quality standards for PFAS and 1,4-dioxane. Thank you for your attention to this critical matter. Please contact us at *hnelson@selc.org* or at 919-967-1450 if you would like to discuss the contents of this letter.

Sincerely,

Hannah M. Nelson

Hannah Nelson

Jean Zhuang

cc:

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[22] *Id.* at D.
[23] *Id.* at C.
[24] *Id.*
[25] *Id.* at A.
[26] Duke Burlington Study, *supra* note 19, at E.
[27] Letter from Hannah Nelson, *supra* note 2, at 2–5.

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