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October 21, 2022

VIA Electronic Mail
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Re: Southern Environmental Law Center Comments on NPDES Wastewater Draft Permit NC0024147, Big Buffalo Wastewater Treatment Plant

Dear Mr. Perlmutter:

The Southern Environmental Law Center offers the following comments, on behalf of Haw River Assembly and Cape Fear River Watch, regarding the draft renewal National Pollutant Discharge Elimination System ("NPDES") Permit NC0024147, issued by the North Carolina Department of Environmental Quality ("the Department") to the City of Sanford for the operation of its Big Buffalo Wastewater Treatment Plant.[1]

The draft permit allows the City of Sanford to discharge wastewater contaminated with 1,4-dioxane and per- and polyfluoroalkyl substances ("PFAS") from its wastewater treatment plant into downstream drinking water supplies in the Cape Fear River Basin.[2] Sanford discharges into the Deep River, a class C water that is approximately seventeen miles upstream of the city's own drinking water intake, which provides the drinking water for over 50,000 people in Sanford, Goldston, Lee County, and parts of Chatham County.[3] Adding to the danger of Sanford's pollution, the City of Sanford has also announced intentions to expand its drinking water services to provide drinking water to the cities of Pittsboro, Fuquay-Varina, and Holly Springs.[4] Further downstream, the Cape Fear River Basin and those who rely upon it are already overburdened with harmful PFAS and 1,4-dioxane contamination.[5] Communities in New Hanover, Brunswick

[1] N.C. Dep't of Env't Quality, Draft NPDES Permit NC0024147 (Sept. 20, 2022) [hereinafter "Big Buffalo Draft Permit"].
[2] *See* Sanford, NPDES Permit Application No.NC0024147 – Big Buffalo Wastewater Treatment Plant (Mar. 2022), at Tab H [hereinafter "Sanford Permit Application"].
[3] Big Buffalo Draft Permit, *supra* note 1 at 2.
[4] *See* Taylor Heeden, *Pittsboro Board Discusses Funding for Water Partnership with Sanford*, CHATHAM NEWS & RECORD (Jan. 30, 2022), https://chapelboro.com/town-square/pittsboro-board-discusses-funding-for-water-partnership-with-sanford Attachment 1; *Interbasin Transfer*, FUQUAY-VARINA, N.C., https://www.fuquay-varina.org/1098/Interbasin-Transfer (last visited Oct. 20, 2022), Attachment 2; Rob Fox, *Water Needs*, SUBURBAN LIVING (Dec. 17, 2021), https://hollysprings.suburbanlivingmag.com/water-needs/, Attachment 3.
[5] N.C. Dep't of Env't Quality, 1,4-Dioxane Monitoring in the Cape Fear River Basin of North Carolina: An Ongoing Screening, Source Identification, and Abatement Verification Study 2 (Feb. 2017), *available at* https://deq.nc.gov/media/8625/download; *PFAS Contamination in the U.S.*, ENV'T WORKING GROUP (June 2022), https://www.ewg.org/interactive-maps/pfas_contamination/.

and Pender counties, which include the cities of Fayetteville and Wilmington, for example, repeatedly experience elevated amounts of these chemicals in their drinking water supply.[6] If Sanford moves forward with its intention to sell water to several additional communities, the drinking water of more than 135,000 North Carolinians will be polluted by Sanford's PFAS and 1,4-dioxane contamination, and that pollution could potentially spread to the Neuse River.[7]

The Department has the authority and responsibility to prevent this pollution. The U.S. Environmental Protection Agency's ("EPA") PFAS Strategic Roadmap recently affirmed that "existing NPDES authorities" can be used to "reduce discharges of PFAS at the source."[8] EPA's plan further confirms that the Clean Water Act pretreatment program can be used to control sources of PFAS, and the agency intends to "require pretreatment programs to include source control."[9] While EPA's guidance focuses on PFAS, the same mechanisms exist for 1,4-dioxane.

North Carolina communities continue to suffer from exposure to these chemicals, and the Department must act now to stop PFAS and 1,4-dioxane from entering our rivers, streams, and drinking water supplies. The Department must use its existing authority under the Clean Water Act to implement limits and mandate that Sanford use its pretreatment authority to ensure these harmful chemicals are kept out of our state's waterways.

I. Sanford's wastewater plant releases PFAS, a class of chemicals known to cause harm to human health and the environment.

In Sanford's permit application materials, the city includes sampling results from 2019 and 2020 indicating that both the influent (water coming into the plant) and effluent (discharge from the plant) contain PFAS.[10] PFAS have been recorded in the wastewater treatment plant at levels as high as 4,026 parts per trillion ("ppt") and data shows that these chemicals make their way into Sanford's wastewater discharges.[11]

PFAS are a group of man-made chemicals manufactured and used broadly by industry since the 1940s.[12] PFAS pose a significant threat to human health at extremely low concentrations. Two of the most studied PFAS—perfluorooctanoic acid ("PFOA") and

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[6] *See, e.g.*, Fayetteville Public Works Commission, 2021 Water Quality Report (Jan. 2022), at 9–10, *available at* https://www.faypwc.com/wp-content/uploads/2021/05/2021-WQR-2.pdf; Cape Fear Public Utility Authority, 2021 Drinking Water Quality Report (2022), at 17–20, *available at* https://www.cfpua.org/ArchiveCenter/ViewFile/Item/798.

[7] Letter from Adam Mitchell, Town Manager Fuquay-Varina to Stanley Meiburg, Chairman N.C. Env't Mgmt. Comm'n (Sept. 1, 2020), Attachment 4.

[8] U.S. Env't Prot. Agency, PFAS Strategic Roadmap: EPA's Commitments to Action 2021-2024 14 (Oct. 2021), https://perma.cc/LK4U-RLBH [hereinafter "EPA PFAS Roadmap"].

[9] *Id.*

[10] Sanford Permit Application, *supra* note 2 at Tab H.

[11] *Id.*

[12] Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances, 87 Fed. Reg. 36,848, 36,849 (June 21, 2022); *Our Current Understanding of the Human Health and Environmental Risks of PFAS*, U.S. ENV'T PROT. AGENCY, https://www.epa.gov/pfas/our-current-understanding-human-health-and-environmental-risks-pfas (last visited Sept. 12, 2022).

perfluorooctane sulfonate ("PFOS")—are bioaccumulative and highly persistent in humans.[13] PFOA and PFOS have been shown to cause developmental effects to fetuses and infants, kidney and testicular cancer, liver malfunction, hypothyroidism, high cholesterol, ulcerative colitis, obesity, decreased immune response to vaccines, reduced hormone levels, delayed puberty, and lower birth weight and size.[14] Because of its impacts on the immune system, PFAS can also exacerbate the effects of Covid-19.[15] Studies show that exposure to mixtures of different PFAS can worsen these health effects.[16] Given these harms, EPA in June 2022 established interim updated lifetime health advisories for PFOA and PFOS in drinking water of 0.004 and 0.02 ppt, respectively.[17]

Other PFAS are similarly harmful.[18] This June, EPA set a final lifetime health advisory for GenX in drinking water of 10 ppt.[19] Numerous states have acknowledged the dangers of other PFAS compounds and proposed or finalized drinking water standards for various PFAS at 20 ppt and lower.[20]

[13] 87 Fed. Reg. at 36,849; U.S. Env't Prot. Agency, Interim Drinking Water Health Advisory: Perfluorooctanoic Acid (PFOA) CASRN 335-67-1 (June 2022), at 3–4, *available at* https://www.epa.gov/system/files/documents/2022-06/interim-pfoa-2022.pdf; U.S. Env't Prot. Agency, Interim Drinking Water Health Advisory: Perfluorooctane Sulfonic Acid (PFOS) CASRN 1763-23-1 (June 2022), at 3–4, *available at* https://www.epa.gov/system/files/documents/2022-06/interim-pfos-2022.pdf.

[14] Arlene Blum et al., *The Madrid Statement on Poly- and Perfluoroalkyl Substances (PFASs)*, 123 ENV'T. HEALTH PERSP. 5, A 107 (May 2015); U.S. Env't Prot. Agency, Drinking Water Health Advisories for PFAS: Fact Sheet for Communities, at 1–2 (June 2022), *available at* https://www.epa.gov/system/files/documents/2022-06/drinking-water-ha-pfas-factsheet-communities.pdf.

[15] *See* Lauren Brown, *Insight: PFAS, Covid-19, and Immune Response–Connecting the Dots*, BLOOMBERG LAW (July 13, 2020, 4:00 AM), https://news.bloomberglaw.com/environment-and-energy/insight-pfas-covid-19-and-immune-response-connecting-the-dots?context=article-related.

[16] 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.

[17] 87 Fed. Reg. at 36,848–49.

[18] U.S. Dep't of Health and Human Servs., Toxicological Profile for Perfluoroalkyls (May 2021), *available at* https://perma.cc/AHF7-RLQD; *see also* U.S. Env't Prot. Agency, Technical Fact Sheet: Drinking Water Health Advisories for Four PFAS (PFOA, PFOS, GenX chemicals, and PFBS) (June 2022), Attachment 5.

[19] 87 Fed. Reg. at 36,848–49.

[20] *See Per- and Polyfluoroalkyl Substances (PFAS),* INTEGRAL CORP., https://www.integral-corp.com/pfas/ (last visited Sept. 12, 2022).

PFAS are also harmful to wildlife and the environment. The chemicals have been shown to cause damaging effects in fish,[21] amphibians,[22] mollusks,[23] and other aquatic invertebrates[24]—resulting in developmental and reproductive impacts, behavioral changes, adverse effects to livers, disruption to endocrine systems, and weakened immune systems.[25] Moreover, PFAS are extremely resistant to breaking down in the environment, can travel long distances, and bio-accumulate in organisms.[26] PFAS have been found in fish tissue, and the primarily low-income and minority communities that rely heavily on subsistence fishing have been found to have

[21] 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); Chen et al., *Accumulation of Perfluorobutane Sulfonate (PFBS) and Impairment of Visual Function in the Eyes of Marine Medaka After a LifeCycle Exposure*, 201 AQUATIC TOXICOLOGY 1–10 (2018); 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); Hagenaars et al., *Structure–Activity Relationship Assessment of Four Perfluorinated Chemicals Using a Prolonged Zebrafish Early Life Stage Test*, 82 CHEMOSPHERE 764–72 (2011); Huang et al., *Toxicity, Uptake Kinetics and Behavior Assessment in Zebrafish Embryos Following Exposure to Perfluorooctanesulphonicacid (PFOS)*, 98 AQUATIC TOXICOLOGY 139–47 (2010); 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); Liu et al., *The Thyroid-Disrupting Effects of Long-Term Perfluorononanoate Exposure on Zebrafish (Danio rerio)*, 20 ECOTOXICOLOGY 47–55 (2011); 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); Rotondo et al., *Environmental Doses of Perfluorooctanoic Acid Change the Expression of Genes in Target Tissues of Common Carp*, 37 ENV'T TOXICOLOGY & CHEM. 942–48 (2018).

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

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

[24] Houde et al., *Endocrine-Disruption Potential of Perfluoroethylcyclohexane Sulfonate (PFECHS) in Chronically Exposed Daphnia Magna*, 218 ENV'T POLLUTION 950–56 (2016); Liang et al., *Effects of Perfluorooctane Sulfonate on Immobilization, Heartbeat, Reproductive and Biochemical Performance of Daphnia Magna*, 168 CHEMOSPHERE 1613–18 (2017); Ji et al., *Oxicity of Perfluorooctane Sulfonic Acid and Perfluorooctanoic Acid on Freshwater Macroinvertebrates (Daphnia Magna and Moina Macrocopa) and Fish (Oryzias Latipes)*, 27 ENV'T TOXICOLOGY & CHEM. 2159 (2008); MacDonald et al., *Toxicity of Perfluorooctane Sulfonic Acid and Perfluorooctanoic Acid to Chironomus Tentans*, 23 ENV'T TOXICOLOGY & CHEM. 2116 (2004).

[25] *See supra* notes 20–23.

[26] *What are PFAS?*, Agency for Toxic Substances and Disease Registry, https://www.atsdr.cdc.gov/pfas/health-effects/overview.html (last visited Oct. 19, 2022); *see also Our Current Understanding of the Human Health and Environmental Risks of PFAS*, *supra* note 12.

elevated PFAS levels in their blood.[27] Due to these harms, EPA has published draft recommended freshwater aquatic life criteria for PFOA and PFOS.[28]

In 2019, sampling of Sanford's influent showed levels of total PFAS at concentrations between 147 ppt and 4,026 ppt.[29] The city sampled its influent again in 2020, recording concentrations of total PFAS reaching up to 2,718 ppt.[30] As staggering as these results are, the full scope of the pollution is likely even greater as influent data often underestimates PFAS levels in the wastewater plant's effluent. Indeed, studies have found, there can be a "substantial increase" in specific PFAS after treatment, and the "degradation of precursor compounds is a significant contributor to PFAS contamination in the environment."[31]

Because PFAS cannot be removed by conventional wastewater treatment processes, these toxic chemicals make it into Sanford's discharge. In 2020, the city recorded concentrations of total PFAS in its discharge ranging between 62.17 ppt and 399.43 ppt.[32] Sanford's discharge contains two particularly harmful PFAS compounds, PFOA and PFOS, at concentrations as high as 15.2 ppt (3,800 times EPA's health advisory) and 14.3 ppt (715 times EPA's health advisory), respectively.

Even though Sanford only included sampling data from 2019 and 2020, it is almost certain these PFAS discharges have continued. Sanford receives wastewater from 11 Significant Industrial Users[33] that engage in a variety of industrial processes, including some known or suspected to be associated with PFAS.[34] For example, Sanford receives industrial wastewater from the following likely sources of PFAS contamination:

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[27] 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. RES. 266 (April 2019); Chloe Johnson, *Industrial chemicals in Charleston Harbor taint fish – and those who eat them*, POST & COURIER (June 4, 2022), https://www.postandcourier.com/environment/industrial-chemicals-in-charleston-harbor-taint-fish-and-those-who-eat-them/article_b2b14506-bc19-11ec-83e5-7f2a8322d624.html.

[28] Draft Recommended Aquatic Life Ambient Water Quality Criteria for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS), 85 Fed. Reg. 26,199, 26,200 (May 3, 2022).

[29] Sanford Permit Application, *supra* note 2 at Tab H.

[30] *Id.*

[31] Ulrika Eriksson, et al., *Contribution of precursor compounds to the release of per- and polyfluoroalkyl substances (PFASs) from waste water treatment plants (WWTPs)*, 61 J. ENVIRON. SCI. 80 (2017); *see also* Mich. Dep't of Env't, Great Lakes, and Energy, *Summary Report: Initiatives to Evaluate the Presence of PFAS in Municipal Wastewater and Associated Residuals (Sludge/Biosolids) in Michigan*, at 9–10, https://perma.cc/C2Z8-DT99.

[32] Sanford Permit Application, *supra* note 2 at Tab H.

[33] N.C. Dep't of Env't Quality, Draft Fact Sheet NPDES Permit No. NC0024147 1 (Sept. 8, 2022) [hereinafter "Sanford Permit Factsheet"]; Sanford Permit Application, *supra* note 2 at 20–30.

[34] Sanford Permit Application, *supra* note 2 at 20–30.

Facility Name	**Caterpillar Boone Trail**	**Caterpillar Womack**	**Hydro Tube**	**Moen**	**Trion**	**STI Polymer**
Industry Category	Metal Finishing - Coatings	Metal Finishing - Coatings	Metal Finishing - Coatings	Metal Finishing - Coatings	Metal Finishing - Coatings	Organic Chemicals, Plastics, & Synthetic Fibers
Average Daily Volume of Wastewater in gallons per day (gpd)	27,000	37,300	7,500	294,000	28,350	25,000

At least five of Sanford's Significant Industrial Users engage in industrial processes related to metal finishing. EPA has confirmed that "PFAS have been, and continue to be, used by metal finishing facilities in the United States" to reduce mechanical wear as well as reduce corrosion or enhance aesthetic appearance.[35] Plating, a type of metal finishing that involves covering a surface with a thin layer of metal, is used "for corrosion inhibition and radiation shielding; to harden, reduce friction, alter conductivity, and decorate objects; and to improve wearability, paint adhesion, infrared (IR) reflectivity, and solderability"[36] The plating industry uses PFAS for "corrosion prevention, mechanical wear reduction, aesthetic enhancement," and as a "surfactant, wetting agent/fume suppressant for chrome, copper, nickel and tin electroplating, and postplating cleaner."[37]

As a result of the metal finishing industry's broad use of PFAS, PFAS contamination of surface water is often found near these facilities.[38] For instance, Michigan, which has done extensive PFAS sampling throughout the state, has linked PFAS pollution to plating facilities in several instances.[39] The state found PFOS at levels of 19,000 ppt in the wastewater from Lapeer

[35] U.S. Env't Prot. Agency, Multi-Industry Per- and Polyfluoroalkyl Substances (PFAS) Study -2021 Preliminary Report 6-4 (Sept. 2021), *available at* https://www.epa.gov/system/files/documents/2021-09/multi-industry-pfas-study_preliminary-2021-report_508_2021.09.08.pdf [hereinafter "EPA PFAS Industry Preliminary Report"].
[36] Hayley & Aldrich, PFAS Technical Update (2020), *available at* https://www.haleyaldrich.com/Portals/0/Downloads/HA-Technical-Update-PFAS-in-the-plating-industry.pdf.
[37] Interstate Technology Regulatory Council, History and Use of Per- and Polyfluoroalkyl Substances (PFAS) 5 (2020), *available at* https://pfas-1.itrcweb.org/fact_sheets_page/PFAS_Fact_Sheet_History_and_Use_April2020.pdf; Fath, et al., *Electrochemical decomposition of fluorinated wetting agents in plating industry waste water*, 73 WATER SCI TECH. 7, 1659–66 (2016), *available at* https://iwaponline.com/wst/article-lookup/doi/10.2166/wst.2015.650.
[38] *See* EPA PFAS Industry Preliminary Report, *supra* note 35 at 6-4 to 6-5.
[39] Garret Ellison, *All Known PFAS Sites in Michigan*, MLIVE (Jun. 11, 2019), https://www.mlive.com/news/erry-2018/07/00699c24a57658/michigan_pfas_sites.html.

Plating & Plastics, a chrome finishing company.[40] Similarly, the state has found elevated levels of PFAS in or around:

- the Washetenaw Industrial Facility in Saline, a former plating site;
- the Ford Motor Company Saline Plant, which formerly did chrome plating;
- a former General Motors Plant 3 plating facility in Lansing;
- the Adams Plating Superfund site in Lansing;
- the Michner Plating shop in Jackson;
- the Diamond Chrome Plating facility in Howell;
- an old Lacks Enterprises plating shop in Cascade Township;
- Electro Chemical Finishing in Wyoming, which discharged plating wastewater;
- a former Lacks Enterprises plating shop in Saranac;
- the former Production Plated Plastics site in Richland;
- the MAHLE Engine Components USA former Harvey Street plant in Muskegon, which previously used plating in the production of engine parts;
- the Peerless Plating facility in Muskegon Heights; and
- the former Manistee Plating shop.[41]

Similarly, industries that work with organic chemicals, plastics, and synthetic fibers—like Sanford's STI Polymer—are a suspected point source category for PFAS.[42] EPA notes that this category:

> includes a broad range of sectors, raw materials, and unit operations that may manufacture or use PFAS…some [organic chemicals, plastics, and synthetic fiber] facilities use PFAS feedstocks as polymerization or processing aids or in the production of plastic, rubber, resin, coatings, and commercial cleaning products.[43]

Given these characteristics, EPA has found that this industry category is likely to generate wastewater containing long-chain and short-chain PFAS including those that are well-studied and known to be harmful to humans.[44]

It is possible that Sanford receives wastewater from other industrial sources of PFAS pollution, nonetheless, because at least six of Sanford's Significant Industrial Users fall into categories known to be associated with PFAS, it is likely that Sanford's wastewater continues to contain the toxic chemicals.

[40] *Id.*
[41] *Id.*
[42] EPA PFAS Industry Preliminary Report, *supra* note 35 at 5-1.
[43] *Id.*
[44] *Id.* at 5-8 to 5-9.

II. Sanford's wastewater plant releases 1,4-dioxane, a chemical that causes cancer.

In addition to Sanford's PFAS pollution, the city discharges wastewater containing 1,4-dioxane, a chemical associated with cancer.[45] Sanford reported that their average daily discharge of 1,4-dioxane is 1.34 parts per billion ("ppb"), but prior sampling at Sanford's wastewater plant shows levels as high as 13 ppb.[46]

1,4-dioxane is a clear, man-made chemical that is a byproduct of many industrial processes.[47] The chemical is toxic to humans,[48] causing liver and kidney damage at incredibly low levels.[49] As a result of the harms caused by 1,4-dioxane, EPA established a drinking water health advisory with an associated lifetime cancer risk of one-in-one-million at a concentration of 0.35 ppb.[50] The State of North Carolina has similarly determined that 1,4-dioxane is toxic and poses a cancer risk at levels higher than 0.35 ppb.[51]

Sanford's NPDES application materials contain sampling results from 2019 and 2020. The sampling shows that the wastewater plant's influent has contained 1,4-dioxane at concentrations as high as 13.2 ppb, more than 37 times what the state considers safe.[52] In 2020, Sanford's discharge contained levels as high as 2.43 ppb.[53]

III. Sanford's pollution threatens drinking water supplies for the communities in Sanford, Goldston, Lee County, and Chatham County.

PFAS and 1,4-dioxane do not break down in the environment and are not removed by conventional treatment technology.[54] That means that if released upstream, these chemicals can and will pollute downstream drinking water supplies. This has been confirmed before by drinking water crises in North Carolina. PFAS pollution from the Chemours Fayetteville Works

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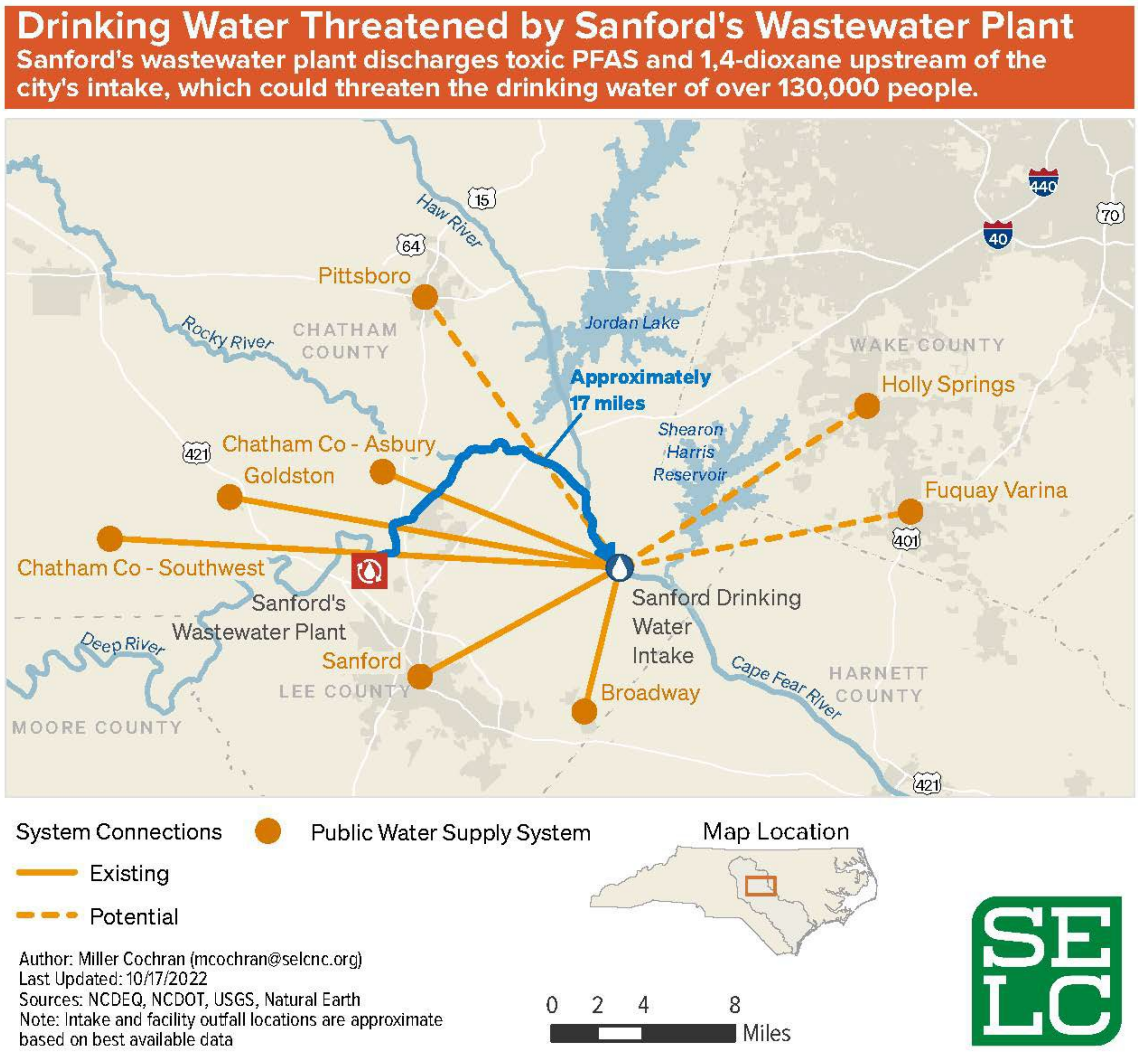
[45] Sanford Permit Application, *supra* note 2 at 23, Tab H.
[46] *Id.* at 23.
[47] U.S. Env't Prot. Agency, *Technical Fact Sheet – 1,4-Dioxane* 1-2 (2017), Attachment 6 [hereinafter "EPA, *Technical Fact Sheet – 1,4-Dioxane*"]; Detlef Knappe*, 1,4-Dioxane Occurrence in the Haw River and in Pittsboro Drinking Water*, N.C. STATE UNIV. (Sept. 23, 2019).
[48] EPA, *Technical Fact Sheet – 1,4-Dioxane*, *supra* note 47 at 1.
[49] *Id.*; U.S. Env't Prot. Agency, *Integrated Risk Information System, Chemical Assessment Summary: 1,4,-dioxane* 2 https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0326_summary.pdf (last visited on Oct. 20, 2022).
[50] *2018 Edition of the Drinking Water Standards and Health Advisories*, EPA OFFICE OF WATER 4 (2018), https://www.epa.gov/sites/production/files/2018-03/documents/dwtable2018.pdf; N.C. Div. of Water Res., *I,4-dioxane Monitoring in the Cape Fear River Basin of North Carolina: An Ongoing Screening, Source Identification, and Abatement Verification Study* 2 (2017) [hereinafter "NCDWR, *1,4-dioxane 2017 Report*"] (affirming EPA's conclusions).
[51] N.C. Div. of Water Res., *1,4-dioxane Monitoring in the Cape Fear River Basin of North Carolina: An Ongoing Screening, Source Identification, and Abatement Verification Study* 2 (2017) [hereinafter "NCDWR, *1,4-dioxane 2017 Report*"] (affirming EPA's conclusions); *see also* N.C. Dep't of Env't Quality, Div. Water Res., Surface Water Quality Standards, Criteria & In-Stream Target Values (2019) (stating that the one-in-one million cancer risk for 1,4-dioxane is 0.35 ppb), Attachment 7.
[52] Sanford Permit Application, *supra* note 2 at Tab H.
[53] *Id.*
[54] *See What are PFAS?*, Agency for Toxic Substances and Disease Registry, https://www.atsdr.cdc.gov/pfas/health-effects/overview.html (last visited Sept. 12, 2022); *see also Our Current Understanding of the Human Health and Environmental Risks of PFAS*, *supra* note 12; EPA, *Technical Fact Sheet – 1,4-Dioxane*, *supra* note 47, at 1–2.

Facility has contaminated drinking water intakes nearly 80 miles downstream,[55] and 1,4-dioxane pollution from the city of Greensboro's wastewater plant has reached the intake for the Pittsboro approximately 50 miles downstream.[56] Sanford's drinking water intake is *seventeen miles* downstream of the wastewater plant's discharge. Toxic chemicals released by Sanford's wastewater plant thus flow directly into the drinking water supplies for Sanford, Goldston, Lee County and parts of Chatham County.



[55] *See* Lisa Sorg, *Breaking: New Analysis Indicates That Toxics Were Present in Wilmington Drinking Water at Extreme Levels*, N.C. POLICY WATCH (Oct. 9, 2019), https://pulse.ncpolicywatch.org/2019/10/09/breaking-new-analysis-indicates-that-toxics-were-present-in-wilmington-drinking-water-at-extreme-levels/#sthash.OtzCYiv3.dpbs.

[56] *See* Lisa Sorg, PW Special Report Part Two: Lax Local Regulation Allows Toxic Carcinogen to Infiltrate Drinking Water Across the Cape Fear River Basin, N.C. POLICY WATCH (July 23, 2020), https://ncpolicywatch.com/2020/07/23/pw-special-report-part-two-lax-local-regulation-allows-toxic-carcinogen-to-infiltrate-drinking-water-across-the-cape-fear-river-basin/.

Indeed, past sampling confirms the contamination of Sanford's drinking water. Monthly sampling by the city shows elevated levels of PFAS in the city's raw water, including concentrations of PFOA and PFOS as high as 9.35 ppt (2,337 times EPA's health advisory) and 13.8 ppt (690 times EPA's health advisory), respectively.[57] In 2021, Sanford also reported an average concentration of 1,4-dioxane in their raw water at 0.71 ppb[58]—twice what the state considers safe to drink.[59] Sample results of 1,4-dioxane reached levels as high as 6.19 ppb,[60] suggesting the extent of the contamination could be more severe. Because industrial discharges of PFAS and 1,4-dioxane are inconsistent (as evidenced by the variability in the sampling for Sanford's wastewater plant), the city's infrequent drinking water sampling likely does not capture the full scope of Sanford's drinking water pollution.

And as discussed, Sanford intends to expand its water services and send drinking water to Pittsboro, Fuquay-Varina, and Holly Springs. Many of these areas are seeking additional water capacity to continue their planned development, but some—like Pittsboro—are also seeking options for water because their current supply is already contaminated with PFAS and 1,4-dioxane.[61] If Sanford's plans go through, the drinking water for more than 80,000 additional people will be laden with these harmful chemicals.

Unfortunately, Sanford's pollution does not stop at its drinking water intake. Further downstream, Sanford's pollution contributes to the disproportionate levels of contamination already present in the Cape Fear River Basin. More than 300,000 people in the communities in the lower Cape Fear get their drinking water from the Cape Fear River. And public attention on the PFAS contamination of drinking water throughout the basin will persist. EPA's Fifth Unregulated Contaminant Monitoring Rule will require broad sampling of drinking water supplies beginning in 2023 and will further shine light on the extent of contamination caused by sources like Sanford's wastewater plant.[62] The Department must control Sanford's discharge if it is to protect the communities and environment in this area.

IV. The law requires the Department to analyze limits for municipal wastewater treatment plants and requires those municipalities to control their industries.

As EPA has affirmed, "existing NPDES authorities" can be used to "reduce discharges of PFAS at the source."[63] The same tools exist for 1,4-dioxane. For municipal wastewater treatment

[57] City of Sanford, 2021 Annual Water Quality Report 6, (2021), Attachment 8 [hereinafter "Sanford 2021 Water Report"].
[58] *Id.* at 7.
[59] Water Quality Standards, Criteria & In-Stream Target Values, *supra* note 51; *see also* 15A N.C. Admin. Code 2B.0208.
[60] Sanford 2021 Water Report, *supra* note 57 at 7.
[61] *See Town of Pittsboro Received Second Water Test Results Post-GAC, Hits 90% Removal Target*, Town of Pittsboro (Oct. 4, 2022), https://pittsboronc.gov/CivicAlerts.aspx?AID=104 (reporting levels of PFOA and PFOS in the raw water at 18.8 ppt and 17.0 ppt, respectively).
[62] *See* U.S. Env't Prot. Agency, The Fifth Unregulated Contaminant Monitoring Rule (UCMR 5): Program Overview Fact Sheet (Dec. 2021), *available at* https://www.epa.gov/system/files/documents/2022-02/ucmr5-factsheet.pdf.
[63] EPA PFAS Roadmap, *supra* note 8 at 14.

plants heavily impacted by industrial discharges, like Sanford, the Department must consider effluent limits and permit conditions to control the pollution.

The Clean Water Act requires permitting agencies to, at the very least, incorporate, technology-based effluent limitations on the discharge of pollutants.[64] When EPA has not issued a national effluent limitation guideline for a particular industry,[65] permitting agencies must implement technology-based effluent limits on a case-by-case basis using their "best professional judgment."[66] North Carolina water quality laws further state that municipalities must be treated like an industrial discharger if an industrial user "significantly impact[s]" a municipal treatment system.[67] In this situation, the agency must consider technology-based effluent limits for the municipality, even if effluent limits and guidelines have not been published and adopted.[68]

If technology-based limits are not enough to ensure compliance with water quality standards, the Department must include water quality-based effluent limits in the permit.[69] North Carolina's toxic substances standard protects the public from the harmful effects of toxic chemicals, like PFAS and 1,4-dioxane.[70] For instance, the toxic substances standard mandates that the concentration of cancer-causing chemicals shall not result in "unacceptable health risks," defined as "more than one case of cancer per one million people exposed."[71] In order to comply with the Clean Water Act, therefore, the Department must analyze appropriate treatment technology and then determine if a discharger's pollution has the "reasonable potential to cause, or contribute" to pollution at levels that could harm human health.[72]

In addition to using effluent limits to control PFAS and 1,4-dioxane pollution, the Department has tools and obligations under the Clean Water Act's pretreatment program.[73] The pretreatment program governs the discharge of industrial wastewater to wastewater treatment plants and is intended to place the burden of treating polluted discharges on the entity that creates the pollution, rather than on the taxpayers that support municipal wastewater plants.

Under the pretreatment requirements, municipalities are required to know what waste they receive from their "Industrial Users."[74] EPA has confirmed that this requirement extends to pollutants that are not conventional or listed as toxic, like PFAS[75] and the Department has suggested the same applies to 1,4-dioxane.[76] Municipalities like Sanford must instruct their

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[64] 40 C.F.R. § 125.3(a) ("Technology-based treatment requirements under section 301(b) of the Act represent the *minimum* level of control that *must* be imposed in a permit…" (emphasis added)); *see also* 33 U.S.C. § 1311.
[65] 33 U.S.C. § 1314(b).
[66] 40 C.F.R. § 125.3; *see also* 33 U.S.C. § 1342(a)(1)(B); 15A N.C. Admin. Code 2B.0406.
[67] 15A N.C. Admin. Code 2B.0406(a)(1).
[68] *Id.*
[69] 40 C.F.R. § 122.44(d)(1)(i); *see also* 33 U.S.C. § 1311(b)(1)(C); 15A N.C. Admin. Code 2H.0112(c) (stating that Department must "reasonably ensure compliance with applicable water quality standards and regulations").
[70] 15A N.C. Admin. Code 2B.0208.
[71] *Id.* at 2B.0208(a)(2)(B).
[72] 40 C.F.R. § 122.44(d)(1)(i).
[73] *Id.* § 403.8.
[74] *Id.* § 403.8(f)(2).
[75] *See* EPA PFAS Roadmap, *supra* note 8 at 14.
[76] *See, e.g.*, NCDWR, *1,4-dioxane 2017 Report*, *supra* note 51 at 5.

industries to identify their pollutants in an industrial waste survey[77] and then to apply for a pretreatment permit, by disclosing "effluent data," including on internal waste streams, necessary to evaluate pollution controls.[78] Significant industrial users are further required to provide information on "[p]rincipal products and raw materials . . . that affect or contribute to the [significant industrial user's] discharge."[79]

A municipality that runs a wastewater plant is required to regulate its industries so that industries do not cause "pass through."[80] "Pass through" is when an industrial discharge causes the wastewater plant to violate its own NPDES permit,[81] including standard conditions such as the one requiring permittees to "take all reasonable steps to minimize or prevent any discharge or sludge use" that has a "reasonable likelihood of adversely affecting human health or the environment."[82] Industries are also not permitted to interfere with publicly-owned treatment works operations. Interference occurs when a discharge disrupts the treatment works' operation or its sludge use or disposal and violates the facility's NPDES permit or other applicable laws.[83] Violating the prohibitions on pass through or interference constitutes a violation of the Clean Water Act's pretreatment standards and requirements.[84] And finally, municipalities must act "immediately and effectively to halt or prevent any discharge of pollutants to the [treatment works] which reasonably appears to present an imminent endangerment to the health or welfare of persons."[85] These requirements are further established in Sanford's municipal ordinances.[86]

Municipalities like Sanford have broad authority to control their industries so that municipally-owned treatment works can comply with these pretreatment laws. They can "deny or condition" pollution permits for industries, control industrial pollution "through Permit, order or similar means," and "require" "the installation of technology."[87] Municipalities can also implement local limits to control industrial pollution sent to treatment works in the first place.[88] And in addition to the implementing effluent limits, the Department can ensure that municipalities comply with the Clean Water Act pretreatment program by including the appropriate permit conditions in the municipalities' NPDES permit.

These rules are how the Clean Water Act "assures the public that [industrial] dischargers cannot contravene the [Clean Water Act's] objectives of eliminating or at least minimizing discharges of toxic and other pollutants simply by discharging indirectly through [wastewater

[77] 40 C.F.R. § 403.8(f)(2)(ii); U.S. Env't Prot. Agency, Introduction to the National Pretreatment Program, at 4-3 (Jun. 2011), *available at* https://www.evansvillegov.org/egov/documents/1499266949_62063.pdf.
[78] U.S. Env't Prot. Agency, Industrial User Permitting Guidance Manual (2012), at 4-2 to 4-3, *available at* https://www.epa.gov/sites/default/files/2015-10/documents/industrial_user_permitting_manual_full.pdf.
[79] 40 C.F.R. § 122.21(j)(6)(ii)(C).
[80] *Id.* § 403.8(a); *id.* § 403.5(a)(1).
[81] Pass through is defined as "a discharge which exits the [treatment works] into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the [treatment works'] NPDES permit (including an increase in the magnitude or duration of a violation)." *Id.* § 403.3(p).
[82] *Id.* § 122.41(d).
[83] *Id.* § 403.3(k).
[84] 40 C.F.R. § 403.5(a)(1).
[85] *Id.* § 403.8(f)(1)(vi)(B).
[86] *See* Sanford, N.C., Code art. VII § 38-241.
[87] 40 C.F.R.§ 403.8(f)(1).
[88] *Id.* § 403.5.

treatment plants] rather than directly to receiving waters."[89] The laws governing the program ensure that municipally-owned wastewater plants do not become dumping grounds for uncontrolled industrial waste.

V. The Department must analyze effluent limits for PFAS and 1,4-dioxane and impose appropriate pretreatment permit conditions.

Based on the information in the city's permit application, the Department is aware that Sanford discharges PFAS and 1,4-dioxane.[90] Claiming that more information is needed, however, the Department did not propose effluent limits and instead only placed monitoring conditions in the city's permit for both chemicals and a reopener for 1,4-dioxane.[91] If the Department truly believes that it needs more information before analyzing and imposing effluent limits, it must request that information during the permit process and require Sanford to submit it as part of its permit application[92]—rather than delaying pollution controls until some indeterminate point in the future.[93]

a. The Department must analyze and impose effluent limits for PFAS and 1,4-dioxane.

As required by the Clean Water Act and discussed in Section IV of this letter, the Department should consider available treatment technology for Sanford's wastewater plant because its waste is significantly impacted by industries that are likely sources of PFAS and 1,4-dioxane. Effective treatment technologies for PFAS are available. Granular activated carbon is a cost-effective and efficient technology that can reduce PFAS concentrations to virtually nondetectable levels. A granular activated carbon treatment system at the Chemours' facility, for example, has reduced PFAS concentrations as high as 345,000 ppt from a creek contaminated by groundwater beneath the facility to nearly nondetectable concentrations.[94] The Department must

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[89] General Pretreatment Regulations for Existing and New Sources, 52 Fed. Reg. 1586, 1590 (Jan. 14, 1987) (codified at 40 C.F.R. § 403).

[90] *See* Sanford Permit Factsheet, *supra* note 33 at 9, 12.

[91] *Id.* at 12.

[92] *Piney Run Pres. Ass'n v. Cty. Comm'rs of Carroll Cty., Maryland*, 268 F.3d 255, 268 (4th Cir. 2001) ("Because the permitting scheme is dependent on the permitting authority being able to judge whether the discharge of a particular pollutant constitutes a significant threat to the environment, discharges not within the reasonable contemplation of the permitting authority *during the permit application process*, whether spills or otherwise, do not come within the protection of the permit shield." (emphasis added)); *see also Southern Appalachian Mountain Stewards v. A & G Coal Corp.*, 758 F.3d 560 (4th Cir. 2014).

[93] The Department must not wait for EPA method 1633 to become final. EPA's guidance recommends using draft Method 1633 for a municipally owned treatment works' influent, effluent, and biosolids and EPA has issued permits requiring use of the method. *See* Memorandum from Radhika Fox, U.S. Env't Prot. Agency, to Water Division Directors EPA Regions 1-10, *Addressing PFAS Discharges in EPA-Issued NPDES Permits and Expectations Where EPA in the Pretreatment Control Authority* (Apr. 28, 2022), Attachment 9[hereinafter "EPA NPDES PFAS Guidance"]; U.S. Env't Prot. Agency, NPDES General Permit for Medium Wastewater Treatment Facilities (WWTF's) In Massachusetts: MAG590000 (Sept. 28, 2022), at 10, Attachment 10; *see also* U.S. Env't Prot. Agency, Response to Comments NPDES Permit No. MAG590000 (Sept. 28, 2022), Attachment 11.

[94] *See* Parsons, Engineering Report – Old Outfall 002 GAC Pilot Study Results (Sept. 2019), *available at* https://www.chemours.com/ja/-/media/files/corporate/12e-old-outfall-2-gac-pilot-report-2019-09-30.pdf?rev=6e1242091aa846f888afa895eff80e2e&hash=040CAA7522E3D64B9E5445ED6F96B0FB; *see also* Chemours Outfall 003, NPDES No. NC0089915 Discharge Monitoring Reports (2020–2022), *available at* https://perma.cc/8YND-XT5M.

consider the feasibility of using this technology or similarly effective technologies to control Sanford's PFAS discharges.

As with PFAS, treatment technologies for 1,4-dioxane are available. For instance, the chemical can be removed using advanced oxidation processes, such as using ultraviolet light in combination with hydrogen peroxide.[95] Such a process has been used at the Tucson International Airport Area Superfund Site to remove legacy 1,4-dioxane contamination.[96] That treatment system can remove over 97 percent of the chemical from polluted water.[97] Treatment technology for 1,4-dioxane has been installed at industries in North Carolina, as well.[98] The Department must assess treatment technology available to control Sanford's 1,4-dioxane waste.

Additionally, as discussed in Section IV, the Department must evaluate water quality-based effluent limits for Sanford's permit—particularly limits to ensure compliance with the narrative toxic substances standard. EPA's health advisories for PFAS and countless toxicity studies indicate that the chemicals pose unacceptable health risks at extremely low levels. The Department has stated that PFAS "meet the definition of 'toxic substance'" and has included limits for PFAS referencing the water quality standard and EPA's health advisory for GenX in at least one NPDES permit.[99] The Department should similarly assess effluent limits in Sanford's permit based on EPA's interim and final PFAS health advisories and other available toxicity information for the chemicals. This is even more important here where the drinking water intake is only seventeen miles downstream of the discharge.

The Department must also ensure that Sanford's 1,4-dioxane discharges do not violate the narrative toxic substances standard. As the North Carolina Environmental Management Commission has made clear, the state uses this standard to set limits and conditions for 1,4-dioxane in NPDES permits.[100] The Department has interpreted the standard to require concentrations of 1,4-dioxane be less than 0.35 ppb in rivers and streams that serve as drinking water supplies.[101] In order to comply with the Clean Water Act, therefore, the Department must

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[95] Amie C. McElroy, et al., *1,4-Dioxane in drinking water: emerging for 40 years and still unregulated*, 7 CURRENT OPINION IN ENV'T SCIENCE & HEALTH 117, 119 (2019), *available at* https://agris.fao.org/agris-search/search.do?recordID=US201900256076.

[96] *See Advanced Treatment for 1,4-Dioxane – Tucson Removes Contamination Through UV-oxidation*, TROJANUV CASESTUDIES (2019), *available at* https://www.resources.trojanuv.com/wp-content/uploads/2018/05/Treatment-of-Groundwater-Contaminated-with-14-Dioxane-Tucson-Arizona-Case-Study-Environmental-Contaminant-Treatment.pdf.

[97] *Id.* at 2; *see also Educational Brochure,* TUCSON AIRPORT AREA REMEDIATION PROJECT, *available at* https://www.tucsonaz.gov/files/water/docs/AOP_TARP_educational_signs.pdf.

[98] *See* City of Greensboro, EMC SOC WQ S19-010 Year One Report: May 1, 2021 – April 30, 2022 4 (June 13, 2022), *available at* https://www.greensboro-nc.gov/home/showpublisheddocument/53017/637908166316270000.

[99] Amended Complaint, *North Carolina v. The Chemours Co.*, 17 CVS 580 (Apr. 9, 2018), at ¶ 152 (stating that "the process wastewater from [Chemours'] Fluoromonomers/Nafion® Membrane Manufacturing Area contains and has contained substances or combinations of substances which meet the definition of "toxic substance" set forth in 15A N.C.A.C. 2B.0202," referring to GenX and other PFAS); N.C. Dep't of Env't Quality, NPDES Permit NC0090042 (Sept. 15, 2022), Attachment 12; N.C. Dep't of Env't Quality, Fact Sheet NPDES Permit No. NC0090042 (Sept. 15, 2022), at 11–12, Attachment 13.

[100] *See, e.g.*, N.C. Env't Mgmt. Comm'n, Regulatory Impact Analysis, 2020-2022 Triennial Review – Surface Water Quality Standards D-13 (2021), Attachment 14 (explaining that the state uses the narrative toxic substances standard to set limits in NPDES permits).

[101] NCDWR, *1,4-dioxane 2017 Report*, *supra* note 51 at 2.

limit Sanford's discharge so that it will not "cause, or contribute" to concentrations of 1,4-dioxane exceeding 0.35 ppb in downstream water supplies.[102] Because Sanford's discharge is only seventeen miles from a drinking water intake, the Department must consider whether Sanford's discharge of 1,4-dioxane has the reasonable potential to violate water quality standards at the start of that water supply water only a few miles downstream.

Additionally, the reopener placed in Sanford's permit is not enough to protect communities affected by Sanford's pollution—those communities cannot be forced to wait for protection. The Department cannot issue a permit unless conditions ensure compliance with water quality standards,[103] and a mere reopener that could be used if an expected water quality standard violation occurs cannot overcome the Department's obligation to ensure that water quality standards will be met *before* issuing a permit. Downstream communities are justifiably concerned about the likelihood that Sanford's permit will actually be reopened given that the 1,4-dioxane reopener in the City of Greensboro's permit has yet to result in enforceable limits despite years of data indicating the municipality discharges the toxic chemical.[104]

The Department must analyze existing data and impose pollution limits for Sanford's wastewater plant. What the agency has done in the current draft permit—requiring only monitoring—is not enough to protect communities currently suffering from PFAS and 1,4-dioxane pollution.

b. The Department must impose conditions in Sanford's NPDES permit requiring the city to use its pretreatment authority to control its industries.

By setting PFAS and 1,4-dioxane limits and conditions in Sanford's permit, the Department can ensure that Sanford properly regulates its industrial users so that they do not release uncontrolled toxic waste into the environment and downstream drinking water supplies.[105] The Department must also consider pretreatment conditions in Sanford's permit to ensure that the city properly identifies and controls any industrial sources of these chemicals.

As an initial matter, the Department must require Sanford to identify all industrial sources of PFAS and 1,4-dioxane. EPA's NPDES PFAS Guidance recommends that permits issued to municipal wastewater treatment plants include a permit requirement to identify industrial users in

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[102] 40 C.F.R. § 122.44(d)(1)(i).

[103] 15A N.C. Admin. Code 2H.0112(c) ("No permit may be issued until the applicant provides sufficient evidence to ensure that the proposed system will comply with all applicable water quality standards and requirements. No permit may be issued when the imposition of conditions cannot reasonably ensure compliance with applicable water quality standards and regulations of all affected states.").

[104] *Compare* N.C. Dep't of Env't Quality, NPDES Permit No. NC0047384 (2014) (containing a reopener that states "[t]his permit may be reopened and modified in the future to include 1,4-dioxane monitoring and/or reduction measures, if the wastewater discharge is identified as contributing to violations of surface water quality standards") *with* N.C. Dep't of Env't Quality, T.Z. Osborne WWTP DEQ Special Study: 1,4-Dioxane Effluent Data (2020), *available at* https://deq.nc.gov/media/18067/download (collecting effluent sample results between 2017 and 2020 and reaching as high as 957.5 ppb) *and* City of Greensboro, T.Z. Osborne 1,4-dioxane Grab Sample Data (Feb. 2022), https://www.greensboro-nc.gov/home/showpublisheddocument/52232/637837174143630000 (reporting 1,4-dioxane concentrations ranging between 1.54 ppb and 823 ppb in Greensboro's effluent between May 5, 2021 and February 15, 2022).

[105] 40 C.F.R. § 403.8(f)(1).

industry categories "expected or suspected of PFAS discharges."[106] After industrial users are identified, the guidance recommends using data collected to develop best management practices or local limits.[107] EPA Region 1 issued an updated NPDES General Permit for medium-sized municipally-owned treatment works in Massachusetts implementing this guidance. The permit requires quarterly sampling of the municipality's influent, effluent, and sludge, as well as annual sampling of the industrial sources.[108] The Department should place a condition in Sanford's permit that requires it to update its industrial user survey and determine the volume and/or concentration of PFAS and 1,4-dioxane being sent, by each industrial user, to the wastewater treatment plant.

After the survey, Sanford will have the tools and information needed to ensure its industries do not cause it to continue to release PFAS and 1,4-dioxane in violation of the Clean Water Act. First, Sanford's municipal ordinances state "[n]o user shall contribute or cause to be contributed into the [wastewater plant] . . . [a]ny wastewater causing the treatment plant effluent to violate state water quality standards for toxic substances as described in 15A NCAC 2B.0200."[109] As discussed above, both PFAS and 1,4-dioxane are regulated as toxic substances under this provision of North Carolina law, and releases of those chemicals that have the potential to harm human health would violate Sanford's ordinance.

In addition, PFAS and 1,4-dioxane released by Sanford's industries into the city's wastewater plant violate the Clean Water Act's pretreatment regulations. For instance, this pollution causes "pass through" because it causes Sanford to violate its NPDES permit conditions, such as the condition requiring permittees to "take all reasonable steps to prevent or minimize any discharge or sludge use" that has a "reasonable likelihood of adversely affecting human health or the environment."[110] Not only do PFAS and 1,4-dioxane flow straight through Sanford's wastewater plant, untreated, as discharges that harm human health and the environment, the chemicals can also end up in Sanford's sludge,[111] which further threatens human health and the environment when the sludge is land applied. Studies have shown that PFAS-contaminated sludge that is land applied can runoff into surface waters that supply drinking water for communities downstream and leach into groundwater which in turn threatens

[106] EPA NPDES PFAS Guidance, *supra* note 93 at 3.
[107] *Id.*
[108] NPDES General Permit MAG590000, *supra* note 93 at 5.
[109] Sanford, N.C., Code art VII § 38-241(b)(19).
[110] 40 C.F.R. § 122.41(d).
[111] Sanford produces sludge as a byproduct of the city's treatment processes and arranges for its sludge to be applied on nearby fields in Chatham County. Sanford is authorized to apply 1,500 dry tons of sludge each year. Because Sanford's treatment plant is not equipped to remove PFAS or 1,4-dioxane, Sanford's sludge likely contains these toxic chemicals.

drinking water wells.[112] 1,4-dioxane has also been found in solid waste in North Carolina,[113] and the land application of sludge contaminated with 1,4-dioxane could also pollute nearby waters.

Second, because these chemicals can end up in Sanford's sludge, PFAS and 1,4-dioxane coming from the city's industries are likely also causing "interference," interfering with the city's sludge processes, use, and disposal practice.[114] Finally, municipalities like Sanford are required to "immediately and effectively . . . halt or prevent any discharge of pollutants to the [treatment works] which reasonably appears to present an imminent endangerment to the health or welfare of persons."[115] This includes any PFAS or 1,4-dioxane that Sanford receives from its industries. Based on the available data, Sanford has not "immediately . . . halt[ed] or prevent[ed]" any PFAS and 1,4-dioxane pollution it receives from its industries.

As the permitting authority for Sanford and the approval authority of the city's pretreatment program, the Department must incorporate NPDES requirements as necessary to ensure compliance. As stated in EPA's NPDES permitting guidance manual, "NPDES permits drive the development and implementation of pretreatment programs."[116] They do so by requiring "control mechanisms issued to significant industrial users," "compliance monitoring activities," and "swift and effective enforcement."[117] Because Sanford's significant industrial users are likely responsible for the city's PFAS and 1,4-dioxane discharges, the Department should include necessary conditions in Sanford's permit to require the city to: (1) update its industrial user survey and determine all industrial sources of PFAS and 1,4-dioxane, and (2) control any industrial sources of the chemicals "through Permit, order," "the installation of technology,"[118] local limits,[119] or other means under the Clean Water Act pretreatment program.

VI. The Department must hold a public hearing on this draft NPDES permit.

With this letter, the Southern Environmental Law Center, on behalf of itself, Haw River Assembly, and Cape Fear River Watch, requests a public hearing on Sanford's draft NPDES

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[112] Andrew B. Lindstrom et al., *Application of WWTP Biosolids and Resulting Perfluorinated Compound Contamination of Surface and Well Water in Decatur, Alabama, USA*, 45 ENVTL. SCI. & TECH. 8015 (2011); Jennifer G. Sepulvado et al., *Occurrence and Fate of Perfluorochemicals in Soil Following the Land Application of Municipal Biosolids*, 45 ENVTL. SCI. & TECH. A, (2011); Janine Kowalczyk et al., *Transfer of Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS)From Contaminated Feed Into Milk and Meat of Sheep: Pilot Study*, 63 ARCHIVES ENVTL. CONTAMINATION & TOXICOLOGY 288 (2012); Holly Lee et al., *Fate of Polyfluoroalkyl Phosphate Diesters and Their Metabolites in Biosolids-Applied Soil: Biodegradation and Plant Uptake in Greenhouse and Field Experiments*, 48 ENVTL. SCI. & TECH. 340 (2014).

[113] Lisa Sorg, *What is your compost made of? Use public records to find out.,* N.C. POLICY WATCH (Apr. 26, 2019), https://pulse.ncpolicywatch.org/2019/04/26/what-is-your-compost-made-of-use-public-records-to-find-out/#sthash.WsYVVKXk.dpbs.

[114] 40 C.F.R. § 403.3(k).

[115] *Id.* § 403.8 § (f)(1)(vi)(B); *see also* Sanford, N.C., Code art. VII. § 38-224(a)(5) (a municipally-owned wastewater plant "may suspend the wastewater treatment service and/or wastewater permit when such suspension is necessary in order to stop an actual or threatened discharge which presents or may present an imminent or substantial endangerment to the health or welfare of persons or the environment, interferes with the [public works] or causes the [public works] to violate any condition of its NPDES or non-discharge permit.").

[116] U.S. Env't Prot. Agency, NPDES Permit Writers' Manual 9-10 (2010), *available at* https://www.epa.gov/sites/default/files/2015-09/documents/pwm_2010.pdf.

[117] *Id.*

[118] 40 C.F.R. § 403.8(f)(1) (emphasis added).

[119] 40 C.F.R. § 403.5.

permit.[120] We are aware that members of the public have already requested a public hearing, but emphasize again the importance of holding such a public event.

There is significant public interest in holding a public hearing on this draft NPDES permit.[121] As explained in thorough detail above, Sanford discharges 1,4-dioxane and PFAS into the drinking water supplies of not only its own residents, but also the residents in Goldston, Lee County, and Chatham County. In addition, Sanford has announced its intent to expand its drinking water services to at least three other cities across the state—including communities that have suffered from industrial chemical pollution for decades. Furthermore, the pollution from Sanford's wastewater plant compounds on the industrial pollution already plaguing the Cape Fear River. The pollution threatens the health of the eco-system of this bio-diversity hotspot and the communities across the Lower Cape Fear, including those in New Hanover, Brunswick and Pender counties, that rely on the Cape Fear for their drinking water, as well as their fishing and tourism economies.

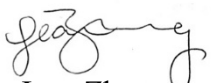
VII. Conclusion.

In summary, the Department must evaluate and impose pollution limits for PFAS and 1,4-dioxane in Sanford's NPDES permit. Additionally, the Department must require Sanford to update its industrial user survey to include PFAS and 1,4-dioxane, and the Department must impose conditions in Sanford's NPDES permit to require the city to use its pretreatment authority to control industrial sources of the toxic chemicals. Because the draft permit fails to meet these requirements, it should be withdrawn. Additionally, we request that the Department hold a public hearing on this permit so that communities affected by Sanford's pollution can express their concerns.

Thank you for considering these comments. Please contact me at 919-967-1450 or *hnelson@selcnc.org* if you have any questions regarding this letter.

Sincerely,

Hannah M. Nelson



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[120] 15A N.C. Admin. Code 2H.0111(a)(1).
[121] N.C. Gen. Stat. § 143-215.1(c)(3); 15A N.C. Admin. Code 2H.0111(a)(1).

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