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**Re: Southern Environmental Law Center Comments on NPDES Wastewater
Draft Permit NC0026123, Asheboro Wastewater Treatment Plant**

Dear Mr. Coco:

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 NC0026123, issued by the North Carolina Department of Environmental Quality (“the Department”) to the City of Asheboro for the operation of its wastewater treatment plant.¹ Asheboro discharges into Hasketts Creek, a class C water and tributary to the Deep River. Asheboro’s wastewater contains 1,4-dioxane and per- and polyfluoroalkyl substances (“PFAS”), chemicals known to cause cancer.²

We are pleased to see the Department utilize its existing authority to control 1,4-dioxane in this draft permit. We are concerned, however, that the compliance schedule in this permit is far too lenient and prolongs unnecessary exposure to toxic chemicals. Additionally, the interim and final limits do not take into consideration relevant information, like other sources of 1,4-dioxane pollution and effluent reductions that Asheboro has already achieved over time.

The most notable omission in the draft permit is that it fails to control PFAS and allows the city to continue to release harmful levels of these toxic chemicals. The Department has the authority and responsibility to prevent PFAS pollution. Just last month, the U.S. Environmental Protection Agency (“EPA”) issued guidance to state agencies “describ[ing] steps permit writers can implement under existing authorities to reduce the discharge of PFAS.”³ EPA’s PFAS NPDES Guidance highlights the same tools that the Department used to control 1,4-dioxane—

¹ N.C. Dep’t of Env’t Quality, Draft NPDES Permit NC0026123 (Dec. 6, 2022) [hereinafter “Asheboro Draft Permit”]. We understand that the present draft replaces an original draft NPDES permit released by the Department in 2018. *See* N.C. Dep’t of Env’t Quality, Draft NPDES Permit NC0026123 (May 1, 2018) [hereinafter “2018 Draft Permit”].

² N.C. Dep’t of Env’t Quality, Fact Sheet NPDES Permit No. NC0026123 (Dec. 7, 2022), at 13 [hereinafter “Draft Permit Fact Sheet”].

³ Memorandum from Radhika Fox, Assistant Administrator, U.S. Env’t Prot. Agency, *Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs* (December 5, 2022) (emphasis added) [hereinafter “EPA’s PFAS NPDES Guidance”], Attachment 1.

namely that state agencies should utilize effluent limits and the pretreatment program to control toxic PFAS pollution. The Department must use those tools to address PFAS in this permit.

The Cape Fear River Basin has some of the highest levels of PFAS and 1,4-dioxane pollution in the entire country. The Department must use its existing authority under the Clean Water Act to ensure these chemicals are kept out of our state's rivers, streams, and drinking water supplies. The draft permit does not do enough to control this pollution and, as set forth in more detail below, the following changes must be made:

- The Department must control Asheboro's 1,4-dioxane pollution on a faster more prescriptive timeline.
- The Department must update the interim and final limits for 1,4-dioxane to reflect reductions already achieved and other sources of the toxic pollution.
- The Department must manage Asheboro's PFAS pollution in this permit by imposing effluent limits and requiring the city to utilize its pretreatment authority to control its industrial sources.

I. Asheboro discharges 1,4-dioxane and PFAS, chemicals linked to cancer.

Asheboro is one of the largest sources of toxic chemical pollution in the Cape Fear River Basin, and both the Department and Asheboro have known about the city's pollution since at least 2015. Today, Asheboro continues to release exceedingly high levels of 1,4-dioxane and PFAS into the Basin endangering the environment and communities who depend on drinking water from the waterways downstream.

a. Asheboro discharges 1,4-dioxane, a human carcinogen.

Asheboro discharges wastewater containing 1,4-dioxane, a chemical associated with cancer.⁴ 1,4-dioxane is a clear, man-made chemical that is a byproduct of many industrial processes.⁵ The chemical is toxic to humans,⁶ causing liver and kidney damage at incredibly low levels.⁷ 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

⁴ Discharge Monitoring Report, NPDES Permit No. NC00026123 (January 2020-November 2022) [hereinafter "Asheboro's DMRs"], Attachment 2.

⁵ U.S. Env't Prot. Agency, *Technical Fact Sheet – 1,4-Dioxane* 1-2 (2017), Attachment 3 [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).

⁶ EPA, *Technical Fact Sheet – 1,4-Dioxane*, *supra* note 5 at 1.

⁷ *Id.*; U.S. Env't Prot. Agency, *Integrated Risk Information System, Chemical Assessment Summary: 1,4,-dioxane* 2 https://iris.epa.gov/static/pdfs/0326_summary.pdf (Aug. 11, 2010).

parts per billion (“ppb”).⁸ 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.⁹

Since 2018, Asheboro’s average daily discharge of 1,4-dioxane has been 116 ppb, more than 300 times what the state considers safe.¹⁰ Further sampling indicates that the wastewater plant has released the toxic chemical at concentrations as high as 1,590 ppb.¹¹ Between 2020 and 2022, the city’s average discharge contained concentrations at 77 ppb and ranged from non-detectable levels to 636 ppb.¹²

Researchers identified elevated levels of 1,4-dioxane in the Cape Fear River Basin in 2014.¹³ Utility-collected samples of drinking water taken during the same time period confirmed that the Cape Fear River Basin had some of the highest 1,4-dioxane concentrations in the entire country.¹⁴ Between 2014 and 2016, the Department collected samples throughout the basin and confirmed three “hot spots” of contamination: the wastewater treatment plants in Greensboro, Reidsville, and Asheboro.¹⁵ For the past seven years, Asheboro has remained one of the three largest sources of toxic 1,4-dioxane pollution in the Basin.

Despite the Department’s knowledge that Asheboro discharges 1,4-dioxane at levels thousands of times higher than what the state considers safe, the city’s NPDES permit has never been re-opened to address the toxic pollution. Asheboro’s current permit was issued in 2012 and does not contain authorization to discharge 1,4-dioxane.¹⁶ Indeed, the permit could not authorize the release of this chemical because the discharge of a specific pollutant (or group of pollutants) cannot be permitted unless it is disclosed in a NPDES permit application.¹⁷ The application proceeding the 2012 permit (and all applications submitted before it), did not disclose that Asheboro’s effluent contained 1,4-dioxane.¹⁸ Even in the most recent 2016 permit application, which is the basis for this draft permit, the city did not include information regarding the amount

⁸ *2018 Edition of the Drinking Water Standards and Health Advisories*, EPA OFFICE OF WATER 4 (2018), <https://www.epa.gov/system/files/documents/2022-01/dwtable2018.pdf>.

⁹ 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 4; Draft Permit Fact Sheet, *supra* note 2 at 13.

¹⁰ Draft Permit Fact Sheet, *supra* note 2 at 4.

¹¹ *Id.* at PDF page 81.

¹² Asheboro’s DMRs, *supra* note 4.

¹³ Chad Ham, et al., Presentation: *Concerns Regarding 1,4-Dioxane In The Water & Wastewater Industry* (Dec. 11, 2015), at slide 11, Attachment 5.

¹⁴ *Data Summary of The Third Unregulated Contaminant Monitoring Rule*, U.S. Env’t Prot. Agency, <https://www.epa.gov/dwucmr/data-summary-third-unregulated-contaminant-monitoring-rule> (last visited Jan. 24, 2023); N.C. Div. of Water Res., *1,4-Dioxane in the Cape Fear River Basin of North Carolina: An Initial Screening and Source Identification Study 2* (2016) [hereinafter “NCDWR, 1,4-dioxane 2016 Report”].

¹⁵ NCDWR, *1,4-dioxane 2016 Report*, *supra* note 14 at 1.

¹⁶ See N.C. Dep’t of Env’t Quality, NPDES Permit NC0026123 (June 27, 2012).

¹⁷ See *In re Ketchikan Pulp Co.*, 7 E.A.D. 605 (EPA) (1998); *Piney Run Pres. Ass’n v. Cty. Comm’rs of Carroll Cty., Maryland*, 268 F.3d. 255 (4th Cir. 2001); *Southern Appalachian Mountain Stewards v. A & G Coal Corp.*, 758 F.3d 560 (4th Cir. 2014).

¹⁸ See, e.g., City of Asheboro, Permit Renewal Application (Mar. 18, 2016) [hereinafter “Asheboro 2016 Permit Application”].

of 1,4-dioxane expected to be in its effluent.¹⁹ Until a version of this draft permit is made final, Asheboro is not permitted to discharge any amount of 1,4-dioxane.²⁰ As a result, each and every time that it does, it is violating the Clean Water Act and is subject to enforcement either by the Department or a citizen suit.

b. Asheboro discharges PFAS, a class of chemicals known to cause harm to human health and the environment.

Asheboro's permit application materials do not contain information about PFAS,²¹ but in April 2019, the Department requested that Asheboro and other municipal dischargers in the Cape Fear River Basin to collect samples for PFAS over three consecutive months.²² The results of that sampling indicate that Asheboro's influent (water coming into the wastewater plant) contains PFAS.²³ PFAS have been recorded in the wastewater plant at levels as high as 121 parts per trillion ("ppt").²⁴

PFAS are a group of man-made chemicals manufactured and used broadly by industry since the 1940s.²⁵ 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.²⁶ 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.²⁷ Because of its impacts on the immune system, PFAS can also exacerbate the effects of Covid-19.²⁸ Studies show that exposure to mixtures of different PFAS

¹⁹ See *id.* at 158 (disclosing 1,4-dioxane only in the groundwater at one of its sources of wastewater).

²⁰ *Piney Run*, 268 F.3d at 268 ("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.").

²¹ See generally Asheboro 2016 Permit Application, *supra* note 18.

²² See Letter from Linda Culpepper, Director, N.C. Division of Water Res. re PFAS and 1,4-dioxane sampling (Apr. 30, 2019).

²³ 2019 POTW 1,4-dioxane & PFAS Sampling Results, N.C. Dept' of Env't Quality 1 (2020), Attachment 6.

²⁴ *Id.*

²⁵ 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 Jan. 24, 2023).

²⁶ 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>.

²⁷ 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>.

²⁸ 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>.

can worsen these health effects.²⁹ Given these harms, EPA in June 2022 established interim updated lifetime health advisories for PFOA and PFOS in drinking water of 0.004 ppt and 0.02 ppt, respectively.³⁰

Other PFAS are similarly harmful.³¹ In June 2022, EPA set a final lifetime health advisory for GenX in drinking water of 10 ppt.³² 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.³³

PFAS are also harmful to wildlife and the environment. The chemicals have been shown to cause damaging effects in fish,³⁴ amphibians,³⁵ reptiles,³⁶ mollusks,³⁷ and other aquatic

²⁹ 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>.

³⁰ 87 Fed. Reg. at 36,848–49.

³¹ 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 7.

³² 87 Fed. Reg. at 36,848–49.

³³ See *Per- and Polyfluoroalkyl Substances (PFAS)*, INTEGRAL CORP., <https://www.integral-corp.com/pfas/> (last visited Jan. 24, 2023).

³⁴ 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 Life Cycle 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); Hagenaaers 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 Perfluorooctanesulphonic acid (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).

³⁵ 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).

³⁶ Guillette et al., *Blood Concentrations of Per- and Polyfluoroalkyl Substances Are Associated with Autoimmune-like Effects in American Alligators From Wilmington, North Carolina*, FRONTEIR TOXICOLOGY 4:1010185 (Oct. 20, 2022), available at <https://www.frontiersin.org/articles/10.3389/ftox.2022.1010185/full>.

³⁷ 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).

invertebrates³⁸—resulting in developmental and reproductive impacts, behavioral changes, adverse effects to livers, disruption to endocrine systems, and weakened immune systems.³⁹ Moreover, PFAS are extremely resistant to breaking down in the environment, can travel long distances, and bio-accumulate in organisms.⁴⁰ 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 elevated PFAS levels in their blood.⁴¹ Due to these harms, EPA has published draft recommended freshwater aquatic life criteria for PFOA and PFOS.⁴²

In 2019, sampling at Asheboro’s wastewater plant showed levels of total PFAS at concentrations between 42.9 and 121 ppt.⁴³ Asheboro’s discharge contains PFOA and PFOS at concentrations thousands of times higher than what EPA considers safe.⁴⁴ 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.”⁴⁵ Moreover, as we have seen with Asheboro’s own reporting of 1,4-dioxane, industrial discharges of these types of chemicals can be intermittent and it’s likely that three months of sampling did not adequately capture the existing pollution.

Even though the most recent sampling for PFAS was in 2019, it is almost certain these chemicals remain present at the wastewater treatment plant. Asheboro receives wastewater from 14 significant industrial users⁴⁶ that engage in a variety of industrial processes, including some

³⁸ Houde et al., *Endocrine-Disruption Potential of Perfluoroethylcyclohexane Sulfonate (PFECES) 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).

³⁹ See *supra* notes 34–38.

⁴⁰ *What are PFAS?*, Agency for Toxic Substances and Disease Registry, <https://www.atsdr.cdc.gov/pfas/health-effects/overview.html> (last visited Jan. 24, 2023); see also *Our Current Understanding of the Human Health and Environmental Risks of PFAS*, *supra* note 25.

⁴¹ Patricia A. Fair et al., *Perfluoroalkyl 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.

⁴² 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).

⁴³ 2019 POTW 1,4-dioxane & PFAS Sampling Results, *supra* note 23 at 1.

⁴⁴ *Id.* (showing concentrations of PFOA as high as 11.7 ppt and PFOS as high as 19.8).

⁴⁵ 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* 9–10 (June 2020), <https://perma.cc/C2Z8-DT99>.

⁴⁶ City of Asheboro, 2020 Pretreatment Annual Report 5 (Feb. 15, 2021) [hereinafter “Asheboro 2020 Pretreatment Report”], Attachment 8 (explaining that two significant industrial users closed in 2020 and the city now has 14 significant industrial users); see also N.C. Div. of Water Res., Pretreatment Compliance Inspection (PCI) Report (May 10, 2022) (stating that Asheboro has 14 significant industrial users).

known or suspected to be associated with PFAS.⁴⁷ For example, Asheboro receives industrial wastewater from the following likely sources of PFAS contamination:

Categorical Significant Industrial User	Category	Flow (GPD)
Matlab, Plant 5	Metal finishing	3,000
Matlab, Plant 8	Metal finishing	800
Premier Powder Coating	Metal finishing	800
Starpet	Organic chemical, synthetic fibers, and plastics	42,000

At least three of Asheboro’s categorical significant industrial users engage in industrial processes related to metal finishing.⁴⁸ 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.⁴⁹ 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”⁵⁰ 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.”⁵¹ EPA has confirmed that when metal finishing industries use PFAS, the chemicals end up in the facilities’ wastewater, surrounding surface waters, and the sewer system of the municipal wastewater treatment plant serving the industry.⁵²

Similarly, industries that work with organic chemicals, plastics, and synthetic fibers—like Asheboro’s Starpet—are a suspected point source category for PFAS.⁵³ 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.⁵⁴

⁴⁷ Asheboro 2016 Permit Application, *supra* note 19 at 129–156; Draft Permit Fact Sheet, *supra* note 2 at 2.

⁴⁸ Asheboro 2016 Permit Application, *supra* note 19 at 143, 145, 147.

⁴⁹ 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”].

⁵⁰ Hayley & Aldrich, PFAS Technical Update (2020), available at <https://www.haleyaldrich.com/Portals/0/Downloads/HA-Technical-Update-PFAS-in-the-plating-industry.pdf>.

⁵¹ Interstate Technology Regulatory Council, History and Use of Per- and Polyfluoroalkyl Substances (PFAS) 5 (2020), available at https://pfas-l.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>.

⁵² EPA PFAS Industry Preliminary Report, *supra* note 49 at 6-4 to 6-5.

⁵³ *Id.* at 5-1.

⁵⁴ *Id.* at 5-2.

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.⁵⁵

Asheboro also receives wastewater from at least three textile companies:⁵⁶

Significant Industrial User	Type of Company	Flow (GPD)
Acme McCrary (MAS Holdings)	Textiles	86,000
Bossong Hosiery	Textiles	67,000
Kayser Roth	Textiles	75,000

Textile manufacturers, including, but not limited to, companies that make clothing, footwear, carpets, rugs, household fabrics, upholstery, medical garments, firefighting garments and outdoor gear have been found to use PFAS to enhance products’ resistance to water, oil, and heat.⁵⁷ Depending on the type of fabric production, PFAS can be added to the fibers themselves or sprayed onto the finished fabric to enhance performance and durability.⁵⁸ As a result, EPA has determined that PFAS “are present in wastewater discharges” from textile companies to municipal wastewater treatment plants.⁵⁹

Because at least the above significant industrial users fall into categories known to be associated with PFAS, it is likely that Asheboro’s wastewater continues to contain the toxic chemicals. Asheboro’s wastewater treatment plant cannot remove PFAS from the wastewater, and as a result, the industrial pollution flows downstream into drinking water supplies.

II. Asheboro’s pollution threatens downstream drinking water supplies.

PFAS and 1,4-dioxane do not break down in the environment and are not removed by conventional treatment technology.⁶⁰ 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 Facility has contaminated drinking water intakes nearly 80 miles downstream,⁶¹ and 1,4-dioxane

⁵⁵ *Id.* at 5-8 to 5-9.

⁵⁶ Draft Permit Fact Sheet, *supra* note 2 at 2; Asheboro 2016 Permit Application, *supra* note 19 at 129, 131, 141.

⁵⁷ EPA PFAS Industry Preliminary Report, *supra* note 49 at 8-3 to 8-4.

⁵⁸ *Id.* at 8-1 to 8-2.

⁵⁹ *Id.* at 8-4.

⁶⁰ See *What are PFAS?*, *supra* note 40; see also *Our Current Understanding of the Human Health and Environmental Risks of PFAS*, *supra* note 25; EPA, *Technical Fact Sheet – 1,4-Dioxane*, *supra* note 5, at 1–2.

⁶¹ 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>.

pollution from the city of Greensboro’s wastewater plant has reached the intake for Pittsboro approximately 50 miles downstream.⁶²

Asheboro’s discharge is approximately 43.5 miles upstream of the nearest drinking water supply in the Deep River.⁶³ A little further downstream, lies the drinking water intake for the city of Sanford, which not only supplies water for its residents, but also communities in Goldston, Lee County, and parts of Chatham County. Sanford intends to expand its water services and send drinking water to Pittsboro, Fuquay-Varina, and Holly Springs.⁶⁴ 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. If Sanford’s plans go through, the drinking water for more than 80,000 additional people will be laden with these harmful chemicals.

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.⁶⁵ In 2021, Sanford also reported an average concentration of 1,4-dioxane in their raw water at 0.71 ppb⁶⁶—twice what the state considers safe to drink.⁶⁷ Sample results of 1,4-dioxane reached levels as high as 6.19 ppb,⁶⁸ suggesting the extent of the contamination could be more severe. Because industrial discharges of PFAS and 1,4-dioxane are inconsistent, the city’s infrequent drinking water sampling likely does not capture the full scope of the drinking water pollution.

Unfortunately, the pollution flowing from the Deep River doesn’t stop at its confluence with the Haw River. Asheboro’s PFAS and 1,4-dioxane 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 River Basin get their drinking water from the Cape Fear

⁶² 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/>.

⁶³ Draft Permit Fact Sheet, *supra* note 2 at 13.

⁶⁴ 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>; Interbasin Transfer, FUQUAY VARINA, N.C., <https://www.fuquay-varina.org/1098/Interbasin-Transfer> (last visited Dec. 22, 2022); Rob Fox, Water Needs, SUBURBAN LIVING (Dec. 17, 2021), <https://hollysprings.suburbanlivingmag.com/water-needs/>.

⁶⁵ City of Sanford, 2021 Annual Water Quality Report 6 (2021), Attachment 9 [hereinafter “Sanford 2021 Water Report”].

⁶⁶ *Id.* at 7.

⁶⁷ Surface Water Quality Standards, Criteria & In-Stream Target Values, *supra* note 9; *see also* 15A N.C. Admin. Code 2B.0208.

⁶⁸ Sanford 2021 Water Report, *supra* note 65 at 7.

River, and some of these communities, like Fayetteville and Wilmington, have reported high levels of 1,4-dioxane and PFAS in their drinking water supplies.⁶⁹

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

In December 2022, EPA released guidance instructing state agencies how to address PFAS through existing NPDES authorities.⁷⁰ The same tools exist for 1,4-dioxane. Federal and state law, as well as EPA’s guidance make clear that the Department must consider effluent limits and permit conditions to control Asheboro’s pollution.

The Clean Water Act requires permitting agencies to, at the very least, incorporate, technology-based effluent limitations on the discharge of pollutants.⁷¹ When EPA has not issued a national effluent limitation guideline for a particular industry,⁷² permitting agencies must implement technology-based effluent limits on a case-by-case basis using their “best professional judgment.”⁷³ 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.⁷⁴ 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.⁷⁵

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.⁷⁶ North Carolina’s toxic substances standard protects the public from the harmful effects of toxic chemicals, like PFAS and 1,4-dioxane.⁷⁷ 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.”⁷⁸ 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.⁷⁹

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.⁸⁰ The

⁶⁹ Fayetteville Public Works Commission, 2021 Annual Water Quality Report 9 (Jan. 2022), *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 17 (2022), *available at* <https://www.cfpua.org/ArchiveCenter/ViewFile/Item/798>

⁷⁰ EPA’s PFAS NPDES Guidance, *supra* note 3.

⁷¹ 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; *see also* EPA’s PFAS NPDES Guidance, *supra* note 3 at 2.

⁷² 33 U.S.C. § 1314(b).

⁷³ 40 C.F.R. § 125.3; *see also* 33 U.S.C. § 1342(a)(1)(B); 15A N.C. Admin. Code 2B.0406.

⁷⁴ 15A N.C. Admin. Code 2B.0406(a)(1).

⁷⁵ *Id.*

⁷⁶ 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”).

⁷⁷ 15A N.C. Admin. Code 2B.0208.

⁷⁸ *Id.* at 2B.0208(a)(2)(B).

⁷⁹ 40 C.F.R. § 122.44(d)(1)(i).

⁸⁰ *Id.* § 403.8.

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.”⁸¹ EPA has confirmed that this requirement extends to pollutants that are not conventional or listed as toxic, like PFAS⁸² and the Department has confirmed the same applies to 1,4-dioxane.⁸³ Municipalities like Asheboro must instruct their industries to identify their pollutants in an industrial waste survey⁸⁴ and then to apply for a pretreatment permit, by disclosing “effluent data,” including on internal waste streams, necessary to evaluate pollution controls.⁸⁵ 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.”⁸⁶

A municipality that runs a wastewater plant is required to regulate its industries so that industries do not cause “pass through” or “interference,” or otherwise violate pretreatment laws.⁸⁷ “Pass through” is when an industrial discharge causes the wastewater plant to violate its own NPDES permit,⁸⁸ 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.”⁸⁹ 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.⁹⁰ Violating the prohibitions on pass through or interference constitutes a violation of the Clean Water Act’s pretreatment standards and requirements.⁹¹ Municipalities must also 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.”⁹² Rules like these are further memorialized in cities’ sewer use ordinances, which lay out specific rules that industrial users must follow and steps the city must take if violations occur.

⁸¹ *Id.* § 403.8(f)(2).

⁸² *See* U.S. Env’t Prot. Agency, PFAS Strategic Roadmap: EPA’s Commitments to Action 2021-2024 14 (Oct. 2021), available at <https://perma.cc/LK4U-RLBH>.

⁸³ *See, e.g.,* NCDWR, *1,4-dioxane 2017 Report*, *supra* note 9 at 5.

⁸⁴ 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.

⁸⁵ 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.

⁸⁶ 40 C.F.R. § 122.21(j)(6)(ii)(C).

⁸⁷ *Id.* §§ 403.8(a), 403.5(a)(1).

⁸⁸ 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).

⁸⁹ *Id.* § 122.41(d).

⁹⁰ *Id.* § 403.3(k).

⁹¹ 40 C.F.R. § 403.5(a)(1).

⁹² *Id.* § 403.8(f)(1)(vi)(B).

Municipalities like Asheboro 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.”⁹³ Municipalities can also implement local limits to control industrial pollution sent to treatment works in the first place.⁹⁴ 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 treatment plants] rather than directly to receiving waters.”⁹⁵ The laws governing the program ensure that municipally owned wastewater plants do not become dumping grounds for uncontrolled industrial waste.

IV. Asheboro’s industries are violating state, federal, and local laws by releasing PFAS and 1,4-dioxane into the sewer system.

Asheboro is responsible for ensuring its industrial users comply with the Clean Water Act pretreatment program and the city’s own local sewer use ordinances. The Department, in turn, is responsible for ensuring Asheboro does so and must incorporate the city’s pretreatment program “as enforceable conditions in the [wastewater treatment plant’s] NPDES permit.”⁹⁶ As described below, Asheboro’s industries are violating Asheboro’s permit, the Clean Water Act pretreatment rules, and the city’s municipal law regarding sewer use. These violations highlight how important it is for the Department to incorporate limits and conditions to ensure Asheboro acts to abate these violations and does not continue to turn a blind eye to these persistent violations.

a. Asheboro’s industries are violating the city’s pretreatment program.

Asheboro’s industries are causing “pass through” and “interference” in violation of the city’s pretreatment program. As explained in Section III above, “pass through” is when an industrial discharge causes the wastewater plant to violate its own NPDES permit. PFAS and 1,4-dioxane pollution from Asheboro’s industries cause “pass through” because the industries cause Asheboro to violate the standard conditions applicable to all NPDES permits, including 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.”⁹⁷

⁹³ *Id.* § 403.8(f)(1).

⁹⁴ *Id.* § 403.5.

⁹⁵ General Pretreatment Regulations for Existing and New Sources, 52 Fed. Reg. 1586, 1590 (Jan. 14, 1987) (codified at 40 C.F.R. § 403).

⁹⁶ U.S. Env’t Prot. Agency, NPDES Permit Writers’ Manual 9-10 (2010) [hereinafter “EPA NPDES Permit Writers’ Manual”], available at https://www.epa.gov/sites/default/files/2015-09/documents/pwm_2010.pdf; see also 40 C.F.R. § 403.8.

⁹⁷ 40 C.F.R. § 122.41(d).

Unfortunately, Asheboro's pollution is not limited to its surface water discharges. Asheboro land applies biosolids produced during the wastewater treatment process.⁹⁸ Because these chemicals are not removed by conventional wastewater treatment technology, the chemicals can end up in Asheboro's sludge. 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 drinking water wells.⁹⁹ The PFAS and 1,4-dioxane coming from the city's industries are therefore likely causing "interference," by further interfering with the city's sludge processes, use, and disposal practice.¹⁰⁰

Asheboro's failure to impose specific limits to prevent pass through and interference, to prohibit these illegal discharges, to enforce or remedy these continuing acts, and to revise and adopt local limits to prevent them from occurring, are violations of Asheboro's NPDES Permit and federal law.¹⁰¹ These violations have resulted in persistent high levels of toxic pollution being released into the environment.

b. Asheboro's industries are violating the city's sewer use ordinances.

Asheboro's sewer use municipal ordinance "sets forth uniform requirements for direct and indirect contributors to the wastewater collection and treatment system."¹⁰² All industrial users must abide by the sewer use ordinance in order to discharge into the city's sewer shed.¹⁰³ One of the primary goals of the ordinance is to "prevent the introduction of pollutants and wastewater discharges into the municipal wastewater system which will pass through the system, inadequately treated, into any waters of the State."¹⁰⁴ To effectuate that goal, the city's ordinance explicitly prohibits industrial users from discharging "[a]ny wastewater causing the treatment plant effluent to violate State Water Quality Standards for toxic substances as described in 15A NCAC 2B .0200."¹⁰⁵

Asheboro's industries are discharging wastewater that is causing the city to violate the toxic substances standard, in further violation of local law. The city has legal responsibility to "[t]ake appropriate actions" to address these violations—including by issuing, modifying, and

⁹⁸ Asheboro is authorized to apply 3,000 dry tons of sludge onto private farms across Guilford and Randolph counties each year. N.C. Dep't of Env't Quality, Permit No. WQ0001684 (Oct. 10, 2019).

⁹⁹ Andrew B. Lindstrom et al., *Application of WWTP Biosolids and Resulting Perfluorinated Compound Contamination of Surface and Well Water in Decatur, Alabama, USA*, 45 ENV'T. SCI. & TECH. 8015 (2011); Jennifer G. Sepulvado et al., *Occurrence and Fate of Perfluorochemicals in Soil Following the Land Application of Municipal Biosolids*, 45 ENV'T. SCI. & TECH. (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 ENV'T 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 ENV'T. SCI. & TECH. 340 (2014).

¹⁰⁰ 40 C.F.R. § 403.3(k).

¹⁰¹ *Id.* §§ 122.41, 403.5(a)(1), 403.5(c)(1), (c)(2); *see also* N.C. Dep't of Env't Quality, NPDES Permit Standard Conditions (Oct. 31, 2011).

¹⁰² Asheboro, North Carolina Code of Ordinances § 52.01(A).

¹⁰³ *Id.* § 52.01(D).

¹⁰⁴ *Id.* § 52.01(A)(2).

¹⁰⁵ *Id.* § 52.05(B)(19).

revoking pretreatment permits.¹⁰⁶ Asheboro, however, has not done so despite nearly a decade of knowledge that the industries are violating these provisions.

Effective operation of the pretreatment program for both PFAS and 1,4-dioxane is necessary to abate these ongoing violations. The city's long-standing inaction makes clear that the Department must be firm with Asheboro's NPDES permit and impose both effluent limits and conditions to ensure that the city does not continue to ignore the threat of toxic pollution from its industrial sources.

V. The Department must do more to control Asheboro's 1,4-dioxane pollution.

We are pleased to see that the Department has used its existing authority to restrict Asheboro's discharge of 1,4-dioxane, and we appreciate the thoughtful process the Department set forth in the draft permit and accompanying fact sheet. The interim limits and overall timeline, however, are unnecessarily lenient and prolong North Carolinian's exposure to toxic pollution. The Department must make the following changes to the draft permit to protect downstream communities.

a. *The compliance schedule in the draft permit is improperly lenient.*

In the draft permit, the Department granted Asheboro a five-year compliance schedule for meeting the final effluent limits for 1,4-dioxane.¹⁰⁷ As proposed, over the next five years, Asheboro must prepare and submit an Action Plan, investigate and identify sources, and meet increasingly lower interim limits before complying with a final limit of 21.58 ppb (monthly average) and 49.4 ppb (daily maximum).¹⁰⁸ While we appreciate the Department's efforts in formulating a thorough plan for pollution reduction, the schedule is far too lenient as the city has already had *seven years* to study and control its toxic pollution. Investigatory measures implemented at other wastewater treatment plants have shown that with mandated and routine sampling, sources can be identified in a matter of months.¹⁰⁹ The Department must shorten the compliance schedule.

The federal Clean Water Act regulations allow a permit writer to add a compliance schedule into a NPDES permit to grant the permittee time to achieve compliance with final effluent limits.¹¹⁰ Before creating a schedule, the permitting agency must make a finding "adequately supported by the administrative record" that the permittee cannot immediately comply with the applicable water quality-based effluent limit.¹¹¹ If the permittee in fact cannot

¹⁰⁶ *Id.* § 52.05(D)(2).

¹⁰⁷ Asheboro Draft Permit, *supra* note 1 at 9.

¹⁰⁸ *Id.* at 3, 9.

¹⁰⁹ See City of Greensboro, Amended Special Order By Consent EMC SOC WQ S19-010 Year One Report: May 1, 2021 – April 30, 2022 16–17 (June 13, 2022) (explaining that nine sources of serious 1,4-dioxane pollution were identified within two quarters of sampling), *available at* <https://www.greensboro-nc.gov/home/showdocument?id=53017&t=637908166316264208> [hereinafter "Greensboro SOC Year 1 Report"].

¹¹⁰ 40 C.F.R. § 122.47. North Carolina's water quality rules incorporate by reference this regulatory provision. 15A N.C. Admin. Code 2H.0143(a)(28).

¹¹¹ Memorandum from James A. Hanlon re *Compliance Schedules for Water Quality-Based Effluent Limitations in NPDES Permits 2* (May 10, 2007) [hereinafter "EPA Compliance Schedule Guidance"], Attachment 10 (citing 40 C.F.R. §§ 122.47(a), 122.47(a)(1)).

comply, a compliance schedule can be created so long as it is “appropriate” and requires compliance with water quality standards “as soon as possible.”¹¹²

EPA guidance on how to prepare a compliance schedule lists a series of factors to consider when determining if the schedule is “appropriate” under the federal rules. These factors include, as relevant here: (1) how much time a discharger has had to meet water quality-based limits, (2) the extent to which the discharger has made a good faith effort to comply with water quality-based limits, (3) whether the discharger would need to modify its treatment facilities or operations to meet the water quality-based limits.¹¹³ Additionally, EPA instructs state agencies to consider the actual steps the discharger will need to take to achieve compliance when determining whether a compliance schedule results in the achievement “as soon as possible.”¹¹⁴ Both of these factors—that the schedule is appropriate and achieves compliance as soon as possible—must be supported by the administrative record for the NPDES permit.¹¹⁵

The compliance schedule in this draft permit is not “appropriate” under the federal rules, and it will not achieve compliance “as soon as possible.” Asheboro’s 1,4-dioxane pollution is not new information and in fact, Asheboro has already had *seven years* to conduct sampling, investigate sources, and implement reduction measures. The Department cannot grant the city five more years to “investigate” a problem that the city should have dealt with long ago. Applying EPA’s factors, Asheboro has had ample time to meet its limits, has not made a good faith effort to comply with limits, and given that the city’s 1,4-dioxane is coming from industrial sources, Asheboro does not need to modify its treatment facilities or operations to meet the limits. Moreover, the city already has the tools needed to resolve its 1,4-dioxane pollution in far less time.

In March 2015, Asheboro began investigating sources of 1,4-dioxane,¹¹⁶ and by the end of the year, the city had identified possible industries that discharge the toxic chemical.¹¹⁷ The city later met with those industries to confirm whether they were the source of the pollution. In the years that followed, Asheboro continued to conduct “sporadic” trunkline sampling to ensure all sources were identified.¹¹⁸ Despite the fact that the city had identified likely sources, Asheboro did not require its facilities to cease their 1,4-dioxane pollution. As a result, more than two years passed, and Asheboro continued to discharge harmful levels of toxic 1,4-dioxane.

¹¹² 40 C.F.R. § 122.47(a)(1); EPA Compliance Schedule Guidance, *supra* note 111 at 2 (citing 40 C.F.R. §§ 122.47(a), 122.47(a)(1).)

¹¹³ EPA Compliance Schedule Guidance, *supra* note 111 at 3.

¹¹⁴ *Id.* at 3.

¹¹⁵ *Id.* at 2.

¹¹⁶ Letter from Michael Rhoney, City of Asheboro to John Hennessey, N.C. Dep’t of Env’t Quality 2 (Apr. 5, 2022) [hereinafter “Asheboro Response to NOV”], Attachment 11.

¹¹⁷ Letter from Michael Rhoney, City of Asheboro to Deborah Gore, N.C. Dep’t of Env’t Quality 1 (Aug. 21, 2019) [hereinafter “Asheboro Corrective Action Plan”], Attachment 12 (“A significant source, Starpet Inc., was identified” in 2015). Julie Grzyb, Notes 1 (Oct. 28, 2015), Attachment 13 (“All three have identified one or two SIU’s discharging the contaminant as a byproduct or as a result of raw materials used at the facility.”).

¹¹⁸ Asheboro Corrective Action Plan, *supra* note 117 at 1.

On October 31, 2017, the Department sent a letter requiring Asheboro to sample its effluent once per month and report the results on the city’s discharge monitoring reports.¹¹⁹ At this time and without rationale, Asheboro ceased its trunkline sampling and investigation efforts.¹²⁰ The results of the first couple months of sampling indicated that the city released the toxic chemical at concentrations as high as 1,590 ppb. Even once the city had to publicly report its 1,4-dioxane discharges, it refrained from controlling its industrial sources of pollution.

On May 1, 2018, the Department released a draft NPDES permit for Asheboro containing an effluent limit for 1,4-dioxane set at 149 ppb.¹²¹ The limit was based on achieving water quality standards in the non-water supply water into which the city discharges. Multiple stakeholders, including downstream drinking water utilities, submitted comments informing the state that the effluent limit was far too high and not protective of downstream water supplies. Asheboro opposed the proposed effluent limit stating the city “is not inclined to regulate” its industries, arguing a lack of conclusive health data for 1,4-dioxane and the Department’s lack of legal authority to enforce water quality laws.¹²² The permit was stalled, and a final permit was not issued.¹²³

On July 22, 2019, nearly two years after the city began routine effluent sampling and four years after the pollution was discovered, the Department requested that Asheboro prepare a corrective action plan for locating and reducing sources of 1,4-dioxane.¹²⁴ Asheboro submitted its plan on August 21, 2019,¹²⁵ identifying Starpet, Inc.—a plastics manufacturing facility—as a source of the 1,4-dioxane pollution and acknowledging that Starpet would be installing treatment technology to remove 1,4-dioxane from its waste stream.¹²⁶ In December 2020, Starpet installed technology, which was designed to reduce 1,4-dioxane discharges to below 1,000 ppb, nearly 9,000 times higher than what the state considers safe.¹²⁷ Even after Starpet installed treatment technology, Asheboro’s effluent sampling continued to show elevated concentrations of 1,4-dioxane, some that were so high the Department issued the city a Notice of Violation.¹²⁸

All of this information indicates that the five-year schedule of compliance is not “appropriate.” Asheboro has already identified sources.¹²⁹ The city has the tools and information needed to achieve pollution reduction. The only reason it has not done so to this point is because it chose not to, as reflected in its response to the 2018 draft permit. Under at least two of the

¹¹⁹ Letter from Jeff Poupart, N.C. Dep’t of Env’t Quality to John Ogburn, City of Asheboro (Oct. 31, 2017), Attachment 14.

¹²⁰ Asheboro Corrective Action Plan, *supra* note 117 at 1.

¹²¹ 2018 Draft Permit, *supra* note 1 at 4.

¹²² Letter from Michael Rhoney, City of Asheboro to Gary Perlmutter, N.C. Dep’t of Env’t Quality 2 (June 7, 2018), Attachment 15.

¹²³ See Draft Permit Fact Sheet, *supra* note 2 at 23.

¹²⁴ Letter from Deborah Gore, N.C. Dep’t of Env’t Quality, to Michael Rhoney, City of Asheboro (July 22, 2019), Attachment 16.

¹²⁵ Asheboro Corrective Action Plan, *supra* note 117 at 1.

¹²⁶ *Id.* at 1–2.

¹²⁷ Asheboro Response to NOV, *supra* note 116 at 11 (attaching an email explaining the treatment system Starpet installed “was only designed to remove the 1,4 Dioxane to a level of 1,000 ug/L”).

¹²⁸ NPDES No. NC0026123, Notice of Violation (NOV-2022-PC-0064) & Intent to Assess CIVIL PENALTIES, N.C. Dep’t of Env’t Quality (Mar. 8, 2022), Attachment 17.

¹²⁹ The city has stated publicly that it has “thoroughly investigated all sources of 1,4 Dioxane and have continual contact with all known sources.” Asheboro Response to NOV, *supra* note 116 at 2.

factors in EPA’s guidance, therefore, the compliance schedule is not appropriate here. In addition, the administrative record does not indicate that the compliance schedule will achieve compliance “as soon as possible.” In fact, the record for this draft permit displays no basis for the five-year term and instead indicates that the Department simply asked the city how much time it wanted to achieve compliance.¹³⁰ In response, the city (without justification) requested “the full 5 year compliance schedule.”¹³¹ This is not a proper rationale as required under the federal rules.

The Department cannot allow the city to continue to avoid controlling pollution at the expense of communities downstream. The schedule of compliance must be shortened to the length of time actually necessary to meet limits, and that decision must be supported by information in the administrative record and fact sheet.

b. The Department must be more prescriptive in the schedule of compliance.

In addition to being far too long, the Department’s schedule of compliance lacks the detail necessary to ensure that Asheboro promptly identifies and addresses sources of 1,4-dioxane pollution. Asheboro has delayed taking meaningful action to control its pollution for nearly a decade. Without prescriptive measures put into the plan, there is no indication that the city’s next steps will actually reduce the pollution.

The Department has seen this play out before. For years, the city of Greensboro claimed it was unable to control its 1,4-dioxane pollution because it was difficult to identify sources.¹³² In 2021, the Environmental Management Commission entered into an agreement with the city that contained explicit details on how the city should conduct its investigation.¹³³ In particular, the plan required Greensboro to sample the wastewater from each of its significant industrial users and to routinely monitor the individual trunklines.¹³⁴ Within a couple months, Greensboro had identified previously unknown major sources of the pollution.¹³⁵ And because it had to make the sampling data publicly available, the city had incentive to make its industries take remedial actions.¹³⁶ The sampling plan imposed on Greensboro was not complicated and contained common sense requirements. The Department should follow the precedent established by the Environmental Management Commission and set forth an investigation plan in this draft permit that is actually designed to identify and control pollution.

c. The Department’s Phase I interim limit calculation should use data only from 2021 to present.

The Phase I limits of 55.7 ppb (monthly average) and 127.6 ppb (daily maximum) were selected based on the 50th percentile of effluent concentrations reported between January 2018

¹³⁰ Draft Permit Fact Sheet, *supra* note 2 at 71 (email from Nick Coco asking whether Asheboro “believes a 5-year compliance schedule is necessary”).

¹³¹ *Id.* at 68.

¹³² *See, e.g.*, Letter from Glenn Dunn, Poyner Spruill to John Hennessey, N.C. Dep’t of Env’t Quality (Dec. 19, 2019), Attachment 18.

¹³³ Settlement Agreement, 21 EHR 01770 & 21 EHR 01771 3 (Nov. 22, 2021), Attachment 19.

¹³⁴ *Id.*

¹³⁵ *See* City of Greensboro, SOC 1,4-dioxane SIU Sampling – 1st Round/Quarter (Nov. 23, 2021), *available at* <https://www.greensboro-nc.gov/home/showpublisheddocument/51253/637745661723900000>.

¹³⁶ Greensboro SOC Year 1 Report, *supra* note 109 at 6.

and September 2022. This is a misleading set of data, however, because it takes into consideration effluent concentrations pre-dating Starpet’s installation of treatment technology (which occurred in December 2020). The set of data is therefore not representative of what Asheboro can and should be expected to achieve within a year of the permit’s issuance. This is not a harmless error. By utilizing data that pre-dates the installation of treatment technology, the draft permit creates an incentive for Asheboro to either delay future reductions or to allow more 1,4-dioxane to enter its discharge. The Department must select a dataset representative of the actions Asheboro has already taken in order to encourage future reductions.

Utilizing reported effluent data between January 2021 to November 2022, the 50th percentile of reported effluent concentrations is significantly lower than that in the draft permit: 44.4 ppb.¹³⁷ Following the Department’s analysis, the Phase I interim limits should (at the very most) be 44.4 ppb (monthly average) and 101.7 (daily maximum).¹³⁸

d. The Department must take into consideration other sources of 1,4-dioxane pollution when calculating water quality-based effluent limits.

Asheboro’s draft permit establishes a final monthly average limit for 1,4-dioxane at 21.58 ppb and a daily maximum limit at 49.4 ppb. These numbers were properly calculated to ensure that the concentration of 1,4-dioxane did not exceed 0.35 ppb in downstream water supplies, as required by North Carolina’s narrative toxic substances standard.¹³⁹ We are encouraged to see that the Department analyzed the impact Asheboro’s pollution will have on the nearest downstream water supply water and set limits based on such anticipated impact. While we agree with the goal of ensuring the water supplies in the Deep River do not exceed 0.35 ppb, the Department cannot analyze Asheboro’s discharge in a vacuum and must take into consideration other sources of 1,4-dioxane pollution when setting the final permit limit.

Federal regulations require a water-quality based limit when a discharge “alone or in combination with other sources...could lead to an excursion above an applicable water quality standard.”¹⁴⁰ Indeed, both federal and state regulations, as well as federal guidance, anticipate that permit writers will consider other sources of pollution to ensure that an appropriate permit limit can be set protecting the designated uses of downstream waters.¹⁴¹

The Department has already identified multiple other facilities contributing to the high concentrations of the toxic chemical in the Cape Fear River Basin. While Asheboro, Reidsville, and Greensboro are by far the largest contributors of 1,4-dioxane in the Cape Fear River Basin, other sources—like the cities of Randleman and Ramseur—contribute to concentrations of 1,4-

¹³⁷ Asheboro’s DMRs, *supra* note 4.

¹³⁸ The fact sheet explains that the daily maximum was developed by applying a multiplier of 2.29 to the average monthly limit as recommended by EPA’s Technical Support Document for Water Quality-Based Toxics Control. Draft Permit Fact Sheet, *supra* note 2 at 14.

¹³⁹ *Id.* at 13.

¹⁴⁰ EPA NPDES Permit Writers’ Manual, *supra* note 96 at 6-23 (citing 40 C.F.R. § 122.44(d)(1)(i)).

¹⁴¹ *Id.*; *see also* 15A N.C. Admin. Code 2B.0404 (explaining water quality-based limits should be imposed when a discharge has “a reasonable potential to cause or contribute to exceedance of applicable water quality standards”); 40 C.F.R. § 122.44(d)(1)(i) (explaining water quality-based limits must be set when the discharge of a pollutant will “cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality”).

dioxane in the Deep River's water supplies. Further downstream where the Deep River converges with the Haw to form the Cape Fear River, 1,4-dioxane from Greensboro, Reidsville, Sanford, Siler City, Burlington, High Point, and industrial dischargers, like DAK Americas, further adds to the pollution burden seen in the Basin's water supplies. The Department must consider these other sources of 1,4-dioxane and restrict Asheboro's pollution so that it alone *or in combination with other sources* does not cause the concentration in downstream water supplies to exceed 0.35 ppb.

e. All monitoring data must be made public.

In this draft permit, Asheboro is required to complete in-stream monitoring for 1,4-dioxane. The city and the Department have agreed that the Upper Cape Fear River Basin Association will collect in-stream samples and submit them to the Department. While it makes practical sense for a monitoring coalition to continue to collect this data—particularly given the Upper Cape Fear River Basin Association's longstanding history of doing so—we request that the Department make explicit that all monitoring collected by the Association be made publicly available or put into the city's discharge monitoring report.¹⁴² While we believe all information regarding water quality should be made public, the request is particularly important when it deals with toxic chemicals released above drinking water sources.

VI. The Department must analyze effluent limits for PFAS just as it did for 1,4-dioxane.

The Department is aware that Asheboro discharges PFAS.¹⁴³ The Department did not, however, propose effluent limits or permit conditions and instead only placed a quarterly monitoring requirement for the class of toxic chemicals.¹⁴⁴ 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 Asheboro to submit it as part of its permit application.¹⁴⁵

The Department's unwillingness to consider limits or pretreatment conditions for PFAS standards in stark contrast to how the agency has addressed 1,4-dioxane. Such disparity in treatment cannot be rationalized and serves only to prolong North Carolinian's exposure to toxic

¹⁴² See Asheboro Draft Permit, *supra* note 1 at 4, n. 1 (requiring that all monitoring be submitted in discharge monitoring reports electronically).

¹⁴³ 2019 POTW 1,4-dioxane & PFAS Sampling Results, *supra* note 23 at 1.

¹⁴⁴ See Asheboro Draft Permit, *supra* note 1 at 3, 10.

¹⁴⁵ *Piney Run Pres. Ass'n*, 268 F.3d at 268 (“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*, 758 F.3d at 565. 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 EPA's PFAS NPDES Guidance, *supra* note 3 at 4; 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 20; see also U.S. Env't Prot. Agency, Response to Comments NPDES Permit No. MAG590000 (Sept. 28, 2022), Attachment 21.

chemical pollution. The Department must make the following changes in this draft permit to address PFAS pollution from Asheboro’s industries.

a. The Department must analyze and impose effluent limits for PFAS.

As discussed in Section III of this letter, the Clean Water Act mandates that technology-based limits be the minimum amount of control imposed in NPDES permits. The Department should consider available treatment technology for Asheboro’s wastewater plant because its waste is significantly impacted by industries that are likely sources of PFAS. 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.¹⁴⁶ The Department must consider the feasibility of using this technology or similarly technologies to control Asheboro’s PFAS discharges.

Additionally, as discussed in Section III, the Department must also evaluate water quality-based effluent limits for Asheboro’s permit. EPA’s PFAS NPDES Guidance confirms that compliance with state water quality standards is relevant when assessing PFAS discharges and directs that a “permit writer should apply” numeric or narrative water quality standards for PFAS in their permitting decisions.¹⁴⁷ North Carolina’s toxic substances standard prohibits the discharge of the chemicals in excess of “the level necessary to protect human health.”¹⁴⁸ As the Department itself has recognized, PFAS meet the definition of “toxic substance” and the Department should therefore analyze whether Asheboro’s discharge will violate this water quality standard.¹⁴⁹ 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 included limits for PFAS referencing the water quality standard and EPA’s health advisory for GenX in at least one NPDES permit.¹⁵⁰ The Department should similarly assess effluent limits in Asheboro’s permit based on EPA’s interim and final PFAS health advisories and other available toxicity information for the chemicals.

In this draft permit, the Department has exhibited that it has the tools and technical ability to craft permit limits based on the narrative toxic substances standard—it did so for 1,4-dioxane. The Department’s decision to forego the same analysis for PFAS, a class of toxic chemicals known to harm human health and the environment, is arbitrary decisionmaking. The Department must analyze existing data (and if it needs more, collect it during the permit application process)

¹⁴⁶ 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>.

¹⁴⁷ EPA’s PFAS NPDES Guidance, *supra* note 3 at 3–4.

¹⁴⁸ 15A N.C. Admin. Code 2B..0208(a)(2).

¹⁴⁹ Amended Complaint, *North Carolina v. The Chemours Company, FC, LLC*, 17 CVS 580 (Bladen Cnty. Super. Ct. 2018), at ¶ 152 (explaining that PFAS “meet the definition of ‘toxic substance’ set forth in 15A N.C.A.C. 2B .0202”).

¹⁵⁰ N.C. Dep’t of Env’t Quality, NPDES Permit NC0090042 (Sept. 15, 2022), Attachment 22; N.C. Dep’t of Env’t Quality, Fact Sheet NPDES Permit No. NC0090042 (Sept. 15, 2022), at 11–12, Attachment 23.

and impose pollution limits for Asheboro’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 pollution.¹⁵¹

b. The Department must impose conditions in Asheboro’s NPDES permit requiring the city to use its pretreatment authority to control industrial sources.

Utilization of the pretreatment program is the most effective and fair way to prevent toxic industrial chemical pollution from contaminating our communities. The Department’s compliance schedule for 1,4-dioxane alludes to the need to utilize the pretreatment program to reduce concentrations of that chemical—the Department must do the same for PFAS.

Just last month, EPA recognized that incorporating PFAS into the pretreatment program is an important tool for state agencies to utilize when faced with a municipal source of PFAS contamination. EPA’s PFAS NPDES Guidance explicitly directs that permits issued to municipal wastewater treatment plants, like Asheboro’s, “contain requirements to identify and locate all possible [industrial users]” that are “expected or suspected for PFAS discharges.”¹⁵² Once sources are identified, EPA recommends that municipalities develop local limits for PFAS or impose best management practices to control the pollution at the source.¹⁵³ In light of this guidance, the Department should include necessary conditions in Asheboro’s permit to require the city to: (1) update its industrial user survey and determine all industrial sources of PFAS, and (2) control any industrial sources of the chemicals “through Permit, order,” “the installation of technology,”¹⁵⁴ local limits,¹⁵⁵ or other means under the Clean Water Act pretreatment program.

In addition, EPA directs that municipal wastewater treatment plants “reduce the amount of PFAS chemicals in biosolids,” and recommends analyzing biosolids using draft method 1633.¹⁵⁶ If PFAS are present in a municipality’s sludge, it should implement best management practices to control PFAS before the chemicals reach the wastewater treatment plant and end up in the city’s sludge.¹⁵⁷ Because Asheboro land applies biosolids produced during the wastewater treatment process,¹⁵⁸ the Department should require that the city sample the sludge and, if it discovers PFAS, adopt practices to reduce the concentrations of toxic chemicals entering the city’s wastewater treatment plant. Doing so is important for addressing all routes of toxic contamination.

¹⁵¹ We also take issue with the frequency of monitoring imposed in the draft permit. Quarterly monitoring is unlikely to capture the full realm of pollution. As the Department has seen with Asheboro’s discharge of 1,4-dioxane, concentrations of toxic pollutants vary depending on the operations of the industrial users. *See, e.g.,* Asheboro’s DMRs, *supra* note 4. Without more frequent monitoring, the Department will not truly understand the threat of Asheboro’s PFAS pollution, and the city will not have the tools it needs to address sources of the contamination.

¹⁵² EPA’s PFAS NPDES Guidance, *supra* note 3 at 4.

¹⁵³ *Id.* at 4.

¹⁵⁴ 40 C.F.R. § 403.8(f)(1) (emphasis added).

¹⁵⁵ *Id.* § 403.5.

¹⁵⁶ EPA’s PFAS NPDES Guidance, *supra* note 3 at 5.

¹⁵⁷ *Id.*

¹⁵⁸ *See* N.C. Dep’t of Env’t Quality, Permit No. WQ0001684 (Oct. 10, 2019); *see also* Brent Collins, EMA Resources Inc, 2021 Annual Report – Asheboro Treatment and Land Application of Residuals Permit No. WQ0001684 (Feb. 28, 2022).

As stated in EPA’s NPDES Permit Writers’ Manual, “NPDES permits drive the development and implementation of pretreatment programs.”¹⁵⁹ They do so by requiring “control mechanisms issued to significant industrial users,” “compliance monitoring activities,” and “swift and effective enforcement.”¹⁶⁰ The Department must impose conditions in Asheboro’s permit for PFAS in the same manner it did for 1,4-dioxane.

VII. The Department must require Asheboro to publicly update or supplement its permit application.

Asheboro’s permit application was submitted in March 2016 and is now more than six years out of date. Since that time, it is likely that significant changes have occurred rendering the information in the application obsolete. For example, since 2016, significant industrial users have both opened and closed.¹⁶¹ In addition, new water quality rules have been passed and sampling analyses have improved in accuracy. Most notably, in the 2016 application, the city makes no disclosure of 1,4-dioxane in the city’s effluent and does not include *any* information about PFAS.¹⁶² The public relies on the information submitted in the publicly available application in order to participate in the permitting process.¹⁶³ The Department should require Asheboro to update its permit application to disclose all pollutants in its discharge and reflect any changes that have occurred in the past six years.

VIII. Contrary to the City of Reidsville’s Assertions, the Department has the authority and justification to regulate 1,4-dioxane and PFAS.

We have also reviewed the City of Reidsville’s January 5, 2023 comments urging the Department to allow more toxic 1,4-dioxane pollution to be discharged into a drinking water supply.¹⁶⁴ Given that Reidsville is a municipality far upstream of Asheboro’s discharge and is not affected in any manner by Asheboro’s permit limits, the Department should give much less weight to its comments than those of downstream communities that are exposed to 1,4-dioxane released by Asheboro.¹⁶⁵ Moreover, Reidsville’s comments reflect a basic misunderstanding of the Clean Water Act and North Carolina’s water quality laws, and we dispel each assertion here.

¹⁵⁹ EPA NPDES Permit Writers’ Manual, *supra* note 96 at 9-10.

¹⁶⁰ *Id.*

¹⁶¹ *See, e.g.*, Asheboro 2020 Pretreatment Report, *supra* note 46 at 5 (explaining that at the beginning of 2020, the city has 16 significant industrial users but two closed); *see also* City of Asheboro, 2017 Pretreatment Annual Report 5 (Feb. 26, 2018) (explaining the city has only 15 significant industrial users).

¹⁶² *See generally* Asheboro 2016 Permit Application, *supra* note 19.

¹⁶³ *See* 15A N.C. Admin. Code 2H.0109, 2H.0115.

¹⁶⁴ Letter from Patrick Mincey, et al., Counsel to the City of Reidsville, to Nick Coco, N.C. Dep’t of Env’t Quality (Jan. 5, 2023) [hereinafter “Reidsville Comments on NC0026123”].

¹⁶⁵ *See* Letter from Kenneth Waldroup, Cape Fear Public Utility Authority, to Nick Coco, N.C. Dep’t of Env’t Quality (Jan. 19, 2023) (explaining that upstream pollution requires the utility to invest millions in treatment processes and making clear that no matter how proactive the water utility is, “ineffective management of loadings within the Basin can negate” any improvements to their water treatment process); *see also* Letter from Michael Rhoney, City of Asheboro, to Nick Coco, N.C. Dep’t of Env’t Quality (Jan. 9, 2023) (indicating that Asheboro does not take issue with the 1,4-dioxane limits or controls).

- a. *The Department lawfully applied the toxic substances standard to Asheboro’s 1,4-dioxane discharges.*

Reidsville’s primary argument is that 0.35 ppb is not a lawful water quality standard—an argument that reveals a misunderstanding of narrative water quality standards. As discussed above, North Carolina’s toxic substances standard, codified at 15A N.C. Admin. Code 2B.0208, directs that “[t]he concentration of toxic substances shall not exceed the level necessary to protect human health.”¹⁶⁶ For carcinogens, this means that concentrations should not cause “more than one case of cancer per one million people exposed.”¹⁶⁷ Depending on the carcinogen, the concentration that is known to cause a one-in-one million risk of cancer will vary, and the Department should enforce the rule accordingly for each substance. For 1,4-dioxane, both EPA and the Department agree that the concentration associated with the one-in-one million cancer risk is 0.35 ppb.¹⁶⁸ Put simply, even though a numeric water quality standard of 0.35 ppb is not written into North Carolina water quality laws, the toxic substances standard is a valid and enforceable narrative standard and the Department has properly applied it to 1,4-dioxane.¹⁶⁹ For Reidsville’s argument to have any merit (it does not), one would have to accept the false conclusion that the Department does not have the authority to enforce narrative water quality standards—such an argument flies in the face of Clean Water Act regulations and U.S. Supreme Court precedent, which require the Department to set permit limits based on narrative water quality standards.¹⁷⁰

It is irrelevant that the Department and the N.C. Environmental Management Commission (“EMC”) proposed to codify 0.35 ppb as a numeric water quality standard during its most recent Triennial Review.¹⁷¹ The Department and EMC proposed the numeric standard for 1,4-dioxane to address public concern and to pave the way for certain waterbodies to be listed as impaired, as well as to provide certainty to the regulated community¹⁷²—not because the Department believed it did not have the authority to regulate 1,4-dioxane under the narrative standard.¹⁷³ In fact, the Department has relied on 15A N.C. Admin. Code 2B.0208 for

¹⁶⁶ 15A N.C. Admin. Code 2B.0208(a)(2).

¹⁶⁷ *Id.* 2B.0208(B).

¹⁶⁸ EPA, *Technical Fact Sheet – 1,4-Dioxane*, *supra* note 5; Surface Water Quality Standards, Criteria & In-Stream Target Values, *supra* note 9.

¹⁶⁹ See 40 C.F.R. §§ 131.11(a)(2) (authorizing states to regulate toxic substances with narrative criteria and informing the state that they must set forth a method for implementing the standard into NPDES permits), 122.44(d)(1)(vi) (“Where a State has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, *the permitting authority must establish effluent limits*” for that compound).

¹⁷⁰ 40 C.F.R. §§ 122.44(d) (directing that NPDES permits “[a]chieve water quality standards...including State narrative criteria for water quality”), 123.25 (applying requirement to state programs), 131.11 (authorizing states to use narrative water quality standards to address toxic pollutants); *PUD No. 1 of Jefferson Cnty. v. Washington Dep’t of Ecology*, 511 U.S. 700, 700 (1994); see also *Ohio Valley Env’t Coal. v. Fola Coal Co., LLC*, 845 F.3d 133, 144 (4th Cir. 2017).

¹⁷¹ *Contra* Reidsville Comments on NC0026123, *supra* note 164 at 2, 4.

¹⁷² See N.C. Dep’t of Env’t Quality Division of Water Res., Regulatory Impact Analysis, 2020-2022 Triennial Review – Surface Water Quality Standards (Mar. 11, 2021), available at <https://deq.nc.gov/media/18238/download>.

¹⁷³ *Contra* Reidsville Comments on NC0026123, *supra* note 164 at 4.

enforcement, issuing a Notice of Violation to Asheboro in March 2022 for its 1,4-dioxane discharges.¹⁷⁴ That the Rules Review Commission improperly rejected the proposed numeric standards because it disagreed with the substance of EMC’s fiscal analysis¹⁷⁵ has no bearing on the Department’s continued authority to enforce an existing narrative water quality standard that remains unchanged by the rulemaking process.

Next, contrary to Reidsville’s assertions, the toxic substances standard does not direct the Department to only control the toxic substances that are otherwise listed in .0212, .0214, .0215, .0216, or .0218. This argument, of course, would render the narrative portion of the standard and the broad definition of “toxic substances” superfluous.¹⁷⁶ Reidsville’s interpretation discards the bulk of the language in the toxic substances standard, improperly extracts a few numbers from the text, and touts those numbers as the whole rule.¹⁷⁷ Our courts have explicitly rejected such piecemeal regulatory interpretation.¹⁷⁸ Each part of a rule “must be construed, if possible, so as to give effect to every provision.”¹⁷⁹ The Department and EMC know how to write numeric water quality standards—indeed, they have done so for many compounds throughout North Carolina’s water quality rules.¹⁸⁰ These governing bodies could have selected to only issue numeric water quality standards, but because there are countless harmful pollutants that can end up in our state’s waterways, they chose to give the Department broader discretion over what constitutes a toxic substance regulated by 2B.0208. And that is what the Department has done—the Department has identified at least 166 other toxic substances¹⁸¹ and has continued to apply 2B.0208 to compounds newly brought to its attention. For example, just last year, the Department issued a NPDES permit to The Chemours Company, FC that contained effluent limits for PFAS that were set, in part, using 15A N.C. Admin. Code 2B.0208—despite the fact that North Carolina rules do not ascribe a numeric water quality standard for the class of compounds.¹⁸²

Finally, it was proper for the Department to control 1,4-dioxane as a carcinogen. For decades, EPA, the Agency for Toxic Substances and Disease Registry, and the U.S. Department

¹⁷⁴ NPDES No. NC0026123, Notice of Violation (NOV-2022-PC-0064) & Intent to Assess CIVIL PENALTIES, *supra* note 128.

¹⁷⁵ See Letter from Lawrence Duke, Rules Review Comm’n Counsel, to Jennifer Everett, N.C. Env’t Mgmt. Comm’n (May 25, 2022) (objecting to the proposed numeric water quality standards and stating that the Rules Review Commission took issue with the EMC’s fiscal analysis).

¹⁷⁶ Subpart (a) of the toxic substances standard previews that it is built of both narrative and numeric component explaining that “[s]pecific standards” are listed in other portions of the rule, and “[t]he narrative standard for toxic substances” is designated in .0208. 15A N.C. Admin. Code 2B.0208.

¹⁷⁷ Reidsville Comments on NC0026123, *supra* note 164 at 4–5.

¹⁷⁸ *Burgess v. Your House of Raleigh, Inc.*, 326 N.C. 205, 216, 388 S.E.2d 134, 140 (1990); see also *Kyle v. Holston Group*, 188 N.C. App. 686, 692, 656 S.E.2d 667, 671 (2008) (applying “cardinal rule of statutory construction that significance and effect . . . should be accorded every part of the [statute], including every section, paragraph, sentence or clause, phrase, and word” to administrative regulations).

¹⁷⁹ *Burgess*, 326 N.C. at 216, 388 S.E.2d at 140.

¹⁸⁰ See, e.g., 15A N.C. Admin. Code 2B.0211, .0212, .0214, .0215, .0216, .0218.

¹⁸¹ Surface Water Quality Standards, Criteria & In-Stream Target Values, *supra* note 9.

¹⁸² NPDES Permit NC0090042 (Sept. 15, 2022), *supra* note 150. Dating back to 2018, the Department recognized that PFAS met the definition of “toxic substance” and were consequently regulated by 15A N.C. Admin. Code 2B.0208. See Amended Complaint, *North Carolina v. The Chemours Company, FC, LLC*, 17 CVS 580 (Bladen Cnty. Super. Ct. 2018), *supra* note 149.

of Health and Human Services have all recognized that 1,4-dioxane is a probable human carcinogen.¹⁸³ These agencies point to myriads of studies indicating that “all routes of exposure” to 1,4-dioxane increases cancer risk in animals.¹⁸⁴ The Final Risk Assessment that Reidsville cites does not conclude otherwise, and in fact, explicitly “did not evaluate hazards or exposures to the general population from ambient air, drinking water, and sediment pathways for any of the conditions of use in this risk evaluation.”¹⁸⁵ That report, therefore, has no bearing on the Department’s analysis in Asheboro’s draft permit, and cannot be used to supplant decades of data indicating the toxicity associated with 1,4-dioxane. Agencies tasked with protecting human health agree that this chemical likely causes cancer, and the Department properly used the section of 15A N.C. Admin. Code 2B.0208 designated for carcinogens.

b. The Department calculated limits for 1,4-dioxane in the draft permit that are too lenient.

Reidsville also criticizes the Department’s effluent limit calculations with a series of arguments that have no legal merit. First, contrary to multiple points in Reidsville’s comments, North Carolina law mandates that water quality based effluent limitations “be developed by the Division such that the water quality standards and best usage of receiving waters *and all downstream waters* will not be impaired.”¹⁸⁶ The Department, therefore, was required to consider whether the discharge would exceed the 80 ppb standard applicable to the river where Asheboro directly discharges *and* the 0.35 ppb standard applicable to the downstream water supply water.¹⁸⁷ That the drinking water intake within that water supply is currently inactive is irrelevant—the designated use for that portion of the river remains a water supply water, and the Department cannot authorize a discharge that threatens that designated use.¹⁸⁸

¹⁸³ See U.S. Env’t Prot. Agency, Integrated Risk Information System (IRIS) Chemical Assessment Summary, 1,4-dioxane; CASRN 123-91-1 (Aug. 11, 2010), *available at* https://cfpub.epa.gov/ncea/iris/iris_documents/documents/subst/0326_summary.pdf [hereinafter “1,4-dioxane IRIS Assessment”]; Agency for Toxic Substances and Disease Registry, 1,4-dioxane – Tox FAQs CASE # 123-91-1 (Apr. 2012), *available at* <https://www.atsdr.cdc.gov/toxfaqs/tfacts187.pdf>; U.S. Dep’t of Health and Human Servs., Report on Carcinogens, Fifteenth Edition 1,4-dioxane CAS No 123-91-1 (2021), *available at* <https://ntp.niehs.nih.gov/ntp/roc/content/profiles/dioxane.pdf>.

¹⁸⁴ 1,4-dioxane IRIS Assessment, *supra* note 183 at 12–13.

¹⁸⁵ U.S. Env’t Protec. Agency, Final Risk Evaluation for 1,4-Dioxane CASRN: 123-91-1 34 (Dec. 2020), *available at* https://www.epa.gov/sites/default/files/2020-12/documents/1_risk_evaluation_for_14-dioxane_casrn_123-91-1.pdf.

¹⁸⁶ 15A N.C. Admin. Code 2B.0203 (emphasis added).

¹⁸⁷ Asheboro hyperbolizes that Asheboro discharges “into waters that eventually become water-supply waters (and eventually become the waters of the Atlantic Ocean, and perhaps eventually the tidal waters of South America or Europe or Africa).” Reidsville Comments on NC0026123, *supra* note 164 at 8. This distraction misses the relevant point that less than 50 miles downstream of Asheboro’s discharge lies a water supply. See Draft Permit Fact Sheet, *supra* note 2 at 13. North Carolina has long documented that 1,4-dioxane released by the City of Greensboro makes its way to Pittsboro’s drinking water intake approximately 50 miles downstream. And in fact, if the Department sets limits that ensure the designated use of that next water boundary is met, it can assure that all the waters that “eventually become the waters of the Atlantic Ocean” will be protected.

¹⁸⁸ See 40 C.F.R. §§ 131.11, 122.44(d)(1)(vi); *see also* 15A N.C. Admin. Code 2B.0206, .0208, .0212, .0214, .0215, .0216, .0218.

Second, the draft permit and fact sheet properly assume that the 1,4-dioxane released by Asheboro will remain in the water when the discharge reaches the downstream water supplies.¹⁸⁹ As the Department and Reidsville are aware, 1,4-dioxane is highly miscible in water and does not break down once released into the environment,¹⁹⁰ making this assumption proper. Reidsville’s qualms with the Department’s calculations are factually inaccurate,¹⁹¹ and if anything, the Department’s final effluent limits are too high because they do not take into consideration other sources of 1,4-dioxane in the watershed, as discussed in Section V(d).¹⁹²

Third, Reidsville’s concerns about Asheboro’s technological capability to achieve the water quality standard similarly carry no weight. The Clean Water Act is a technology forcing statute, and technology-based limits are the *minimum* amount of control necessary for a NPDES permit.¹⁹³ The Department is required to assure that water quality standards are met, regardless of treatment technology capabilities. Moreover, as discussed above, technology exists to remove 1,4-dioxane from industrial wastewater—Asheboro’s own industry, Starpet, has installed such technology, and Shamrock, which discharges into Greensboro’s wastewater treatment system, has similarly installed a treatment system.¹⁹⁴

c. The Department must follow the law regardless of past permitting decisions.

Throughout the comments, Reidsville argues that because this draft permit is different than the one released in 2018 and is different from other permits controlling 1,4-dioxane, that it must be arbitrary and capricious.¹⁹⁵ The opposite is true. The Department is required to take into consideration public comments raised in response to a draft permit,¹⁹⁶ and must issue a permit that achieves compliance with water quality standards.¹⁹⁷ The Department has properly made amendments with this draft permit to address those two requirements.

And the Department must ensure that Asheboro’s permit complies with the law regardless of its past permitting decisions. Reidsville cites two industrial discharge permits that

¹⁸⁹ Draft Permit Fact Sheet, *supra* note 2 at 13.

¹⁹⁰ EPA, *Technical Fact Sheet – 1,4-Dioxane*, *supra* note 5; Draft Permit Fact Sheet, *supra* note 2 at 13.

¹⁹¹ For the purposes of establishing technology-based effluent limits, municipalities must be treated like an industrial discharger if an industrial user “significantly impact[s]” a municipal treatment system. 15A N.C. Admin. Code 2B.0406(a)(1).

¹⁹² Reidsville raises concerns about both the final and interim effluent limits. For example, in notable conflict with the remainder of its comments, Reidsville takes issue with the fact that the interim limits are not based on the 0.35 ppb standard. *See* Reidsville Comments on NC0026123, *supra* note 164 at 11–12. If Reidsville raised this comment because it believes that the standard of 0.35 ppb should apply immediately, then we would agree.

¹⁹³ 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)); 33 U.S.C. § 1311; *see also* EPA’s PFAS NPDES Guidance, *supra* note 3 at 2.

¹⁹⁴ *See* Asheboro Response to NOV, *supra* note 116 at 11; *see also* Greensboro SOC Year 1 Report, *supra* note 109 at 4.

¹⁹⁵ Reidsville Comments on NC0026123, *supra* note 164 at 4, 6, 9, 10–11.

¹⁹⁶ Nc gen stat 143-215.1(c); 15A N.C. Admin. Code 2H.0111(a)(3) (“All comments received within 30 days following the publication date of the notice of NPDES permit application shall be made part of the application file and shall be considered by the Director prior to taking final action on the application.”)

¹⁹⁷ 15A N.C. Admin. Code 2H.0112(c).

contain different controls for 1,4-dioxane,¹⁹⁸ and to some degree, Reidsville is correct—those industrial permits do not protect downstream water supplies, and as a result, they are unlawful. Fortunately, the Department’s issuance of past permits that were not protective does not commit the agency to future unlawful decisions, and the Department will have the opportunity to fix these permits within the next year.¹⁹⁹

Similarly, the Special Order by Consent issued to the City of Greensboro has no bearing on Asheboro’s permit. A Special Order by Consent is a tool used to set a facility on a schedule towards achieving compliance with the law.²⁰⁰ At the end of the term, the facility must achieve compliance with water quality standards.²⁰¹ Greensboro will have to meet the water quality standards in 15A N.C. Admin. Code 2B.0208 upon the completion of its Special Order by Consent—making it consistent with, rather distinct from, the Department’s treatment of Asheboro’s 1,4-dioxane discharges.²⁰² The Department’s actions drafting Asheboro’s permit are more consistent with the law than those cited by Reidsville, and as discussed in Sections V and VI above, Asheboro’s permit should be made even stronger.

IX. Conclusion.

In summary, we acknowledge the Department’s control of 1,4-dioxane in this draft permit and are encouraged by the process set forth to achieve the narrative water quality standard in the nearest water supply water. The process in the permit is the correct one—it requires Asheboro to control its pollution through the implementation of effluent limits and requirements for the city to use its pretreatment program. These are existing authorities the Department has and should be using in NPDES permits addressing 1,4-dioxane and PFAS. The timeline and procedure afforded to Asheboro, however, is far too lenient and the limits do not take into consideration other sources of pollution or the reductions the city has already achieved. Additionally, as described in detail above, the Department cannot ignore Asheboro’s PFAS pollution and must go through the same analysis of establishing limits and forcing control of industrial sources through the pretreatment program. The Department must make the changes discussed in this letter before issuing a final permit.

¹⁹⁸ See Reidsville Comments on NC0026123, *supra* note 164 at 9 (discussing the permit issued to Radiator Specialty Company), 10–11 (discussing the permit issued to DAK Americas).

¹⁹⁹ The NPDES permits for DAK Americas expired on October 31, 2022, and the NPDES permit for Radiator Specialty Company will expire on March 31, 2023. N.C. Dep’t of Env’t Quality, NPDES Permit No. NC0003719 (Aug. 1, 2018); N.C. Dep’t of Env’t Quality, NPDES Permit No. NC0088838 (July 1, 2019). The Department will need to issue a new permit to each facility that controls the industries’ pollution, including 1,4-dioxane.

²⁰⁰ N.C. Gen. Stat. § 143-215.2(a).

²⁰¹ See 15A N.C. Admin. Code 2H.1206(a); see also Memorandum from Coleen H. Sullins, N.C. Dep’t of Env’t and Nat. Res. to Ted Bush, et al., regarding Special Orders By Consent (SOC) Guidance Document (Aug. 17, 2010) (“An SOC is a special type of administrative order whereby the Environmental Management Commission (EMC) enters into an agreement with a permittee experiencing noncompliance with statutes, rules or permit requirements. The SOC specifies action designed to reduce, eliminate or prevent water quality degradation by bringing the permittee back into compliance.”).

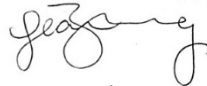
²⁰² The EMC has confirmed this as recently as this month by sharing that Greensboro’s next NPDES permit will continue final limits of 0.54 ppb (monthly average) and 1.53 ppb (daily max). See N.C. Dep’t of Env’t Quality, Annual 1,4 Dioxane Progress Report 5 (Jan. 2023).

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,



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