

June 24, 2022

VIA E-MAIL

Sergei Chernikov
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**Re: Cape Fear River Watch and North Carolina Sierra Club
Supplemental Comments on Chemours' Draft NPDES Permit
No. NC0090042**

Dear Dr. Chernikov:

The Southern Environmental Law Center submits these supplemental comments on draft NPDES Permit No. NC0090042 on behalf of Cape Fear River Watch and North Carolina Sierra Club. Since submitting our May 2, 2022 comments, which we incorporate here by reference, we have reviewed additional discharge monitoring reports that further support the conclusion that permit limits must be much lower than currently proposed.

I. Additional Data Supports Limits Proposed in Prior Comments.

Our May 2, 2022 comments were based in part on discharge monitoring reports from October 2020 through January 2022.¹ Since that time, we have reviewed discharge monitoring reports from February 2022 through April 2022 that we received from the Division. As with prior reports, GenX, PFMOAA, and PMPA were not detected in the 13 samples reported.² These data support limits at or near the level of detection for each of the three indicator compounds.

In addition to requesting discharge monitoring reports from the Division, we also requested and reviewed other documentation supporting the limits in the draft permit. In a draft response to our December 2021 letter, Division staff raised several issues—including whether we properly excluded a sample taken on October

¹ Letter from Geoff Gisler, SELC, to Sergei Chernikov, N.C. Dep't of Env't Quality at 9-10 (May 2, 2022), <https://perma.cc/3UJW-V7R7> (hereinafter SELC May 2022 Comments).

² See *Chemours Outfall 003, NPDES No. NC0089915 Discharge Monitoring Reports (2020–2022)*, <https://perma.cc/KDT5-8PDD> (hereinafter Chemours 2020-2022 DMRs).

29, 2020.³ The sample reported levels of 25 ng/L GenX, 1,200 ng/L of PFMOAA, and 130 ng/L of PMPA.⁴ This data was properly excluded.

The high levels of PFAS detected on October 29, 2020 were caused by Chemours' failure to properly install the treatment system. Citing Chemours for four permit violations, the Division described the system at that time as "not properly designed" and cited Chemours for "[t]he failure to install a properly designed system."⁵ The Division cannot rely on sampling data for a system that was out of compliance or improperly designed to justify the limits here. The Clean Water Act requires the Division to set technology-based limits "on the basis of the design and expected operation of the control technologies," not a malfunctioning system.⁶ Case-by-case technology-based effluent limits, therefore, cannot be set to accommodate a system that is "not properly designed." The Division must set limits based on the expected operation of a well-designed system—not on a system that the Division has determined was faulty and in violation of permit requirements and state law. Here, that expected operation is reflected in the operation of the Outfall 003 treatment system from November 2020 to the present, after Chemours resolved issues at the treatment system.

The Division's draft response erroneously includes a table that incorporates the illegal discharge on October 29, 2020.⁷ Based on that error, the agency mistakenly concludes that "the facility cannot meet the GenX limit of 0.002 – 0.004 µg/L that is suggested by SELC."⁸ As shown in our May 2, 2022 comments, the highest GenX concentration recorded during lawful operation of the Outfall 003 system was 2.3 ng/L on September 7, 2021.⁹ All of the available evidence confirms that a properly designed GAC treatment system can meet the limits proposed in our May 2, 2022 comments. The Division's attempt to justify the limits in the draft permit based on illegal discharges caused by Chemours' failure to properly design the Outfall 003 system is arbitrary and capricious.

II. Seep Data Supports More Stringent Permit Limits.

In our previous comments, we indicated that sampling from Seep B supported more stringent permit limits.¹⁰ In the Division's draft response to our

³ *Responses to the SELC Comments: Pre-Draft Chemours Permit NC0090042* at 1-2, N.C. DEPT OF ENV'T QUALITY (Dec. 13, 2021), <https://perma.cc/J7YY-57RF> (hereinafter DEQ Draft Response).

⁴ Chemours 2020-2022 DMRs, *supra* note 2.

⁵ Letter from Sheila Holman, N.C. Dep't of Env't Quality, to Dawn Hughes, Chemours at 3 (Jan. 26, 2021), <https://perma.cc/5YHC-33RM> (2021 Notice of Violation).

⁶ EPA, *NPDES Permit Writers' Manual* at 5-20 (Sept. 2010), <https://perma.cc/Q5N8-WVMC>.

⁷ DEQ Draft Response, *supra* note 3, at 2.

⁸ *Id.*

⁹ SELC May 2022 Comments, *supra* note 1; Chemours 2020-2022 DMRs, *supra* note 2. Even the Division's chart concedes that the illegal October 29, 2020 discharge is less than 25% of the limit in the draft permit for Outfall 004.

¹⁰ SELC May 2022 Comments, *supra* note 1, at 9-10.

December 2021 letter, staff questioned whether we properly excluded certain seep data that showed an overall reduction of less than 99% for the flow-through cells.¹¹ We properly focused on Seep B both in our December 2021 and May 2022 comments.

The seep data must be put in context. The flow-through cells are not as sophisticated as the Outfall 003 treatment system or the GWTS and are exposed to variability that will not affect the performance of the GWTS. They do not include pretreatment, are in the floodplain, and are subject to sedimentation caused by heavy rain.¹² Although the Outfall 003 treatment system had some sedimentation during startup, those issues were caused by improper design of the system that has been resolved.¹³ Therefore, the only relevant data from the flow-through cells is how they perform when not impeded by flooding or sedimentation—two challenges that the GWTS will not face.

Data from Seep B is most representative of conditions like the GWTS. The Seep B flow-through cell has performed consistently, has had the fewest sedimentation issues, and treats the largest volume of water.¹⁴ In addition, unlike Seeps C and D, water from Seep B will be treated by the GWTS.¹⁵ Therefore, it is appropriate to limit review of flow-through cell data to Seep B.

III. There is No Rational Basis for Allowing PFAS Discharges at the Levels Proposed.

The Division's draft response to our December 2021 letter also suggested that iron and manganese in the groundwater prevented the Division from relying on Outfall 003 effluent data to set permit limits.¹⁶ That argument lacks merit for multiple reasons. Most significantly, Chemours has identified the Outfall 003 treatment system as representative of the expected effluent at Outfall 004.¹⁷

¹¹ DEQ Draft Response, *supra* note 3, at 1-2.

¹² *See, e.g.*, Geosyntec Consultants of NC, *Onsite Seeps Long-Term Loading Calculation Plan: Chemours Fayetteville Works* at 4 (Oct. 2020), <https://perma.cc/G4ZM-QRFK> (discussing flooding); *see also* Geosyntec Consultants of NC, *Interim Seep Remediation Operation and Maintenance Report #8: Chemours Fayetteville Works* at 5, 6, 14 (May 31, 2022), <https://perma.cc/RB2Y-2NMX>.

¹³ Letter from Dawn M. Hughes, Plant Manager, Chemours – Fayetteville Works, to Sheila Holman, Assistant Sec'y for the Env't, N.C. Dep't of Env't Quality, & Danny Smith, Director, Division of Water Res. (Feb. 25, 2021), <https://perma.cc/YK9A-8HRH> (Chemours discussing fixes to system to resolve issues).

¹⁴ Geosyntec Consultants of NC, *Interim Seep Remediation Operation and Maintenance Report #8: Chemours Fayetteville Works* at 12-13 (May 31, 2022), <https://perma.cc/RB2Y-2NMX> (table showing Seep B treats the largest volume of water).

¹⁵ Sergei Chernikov, *Fact Sheet: NPDES Permit No. NC0090042* at 2, N.C. DIV. WATER RES. (Apr. 27, 2020), <https://perma.cc/8UAT-2CDK>.

¹⁶ DEQ Draft Response, *supra* note 3.

¹⁷ Chemours Co., *Chemours Fayetteville Works NPDES Permit Application for the Groundwater Treatment System* at 3 (June 13, 2021), <https://perma.cc/5XY6-Y628> (hereinafter GWTS NPDES Application).

Moreover, both the company and the Division have relied on Outfall 003 treatability studies to support the GWTS analysis.¹⁸ Given the performance of the Outfall 003 treatment system, nothing supports the limits proposed in the draft permit.

A. The GWTS will not be impaired by soluble iron or manganese.

The Division's draft response cites iron and manganese as potential confounding factors for the GWTS but does not identify any basis for such a conclusion. There has been no supporting documentation in the Division's response to our March 24, 2022 public records request, the agency's Laserfiche repository, or the company's application. The Division instead discusses iron and manganese as hypothetical issues that may arise when treating groundwater. Review of the evidence before the agency demonstrates that those hypothetical concerns do not apply here.

The record shows that iron and manganese will not disrupt the GWTS. In the Division's draft response to our comments, the agency states that "Chemours is designing the system to remove dissolved iron."¹⁹ The company's Engineering Report states that Chemours has designed a system with "[c]hemical oxidation and pH adjustment . . . to precipitate metals, such as iron, to prevent downstream contamination or fouling of the granulated activated carbon (GAC) media."²⁰ The system "**will be designed to help ensure complete oxidation of reduced iron species.**"²¹ Metals will be removed by "ultrafiltration membranes or some other suitable separation technology."²² The Engineering Report also confirms that "[p]ilot studies have been completed by vendors to verify the effectiveness of their proposed pretreatment methods."²³ Chemours is using the pilot studies "to inform... pretreatment dosing chemistry."²⁴ Notably, the company cites past treatability studies, including the treatability study for Outfall 003, as the basis for its confidence in the proposed system.²⁵ The Outfall 003 treatability study demonstrated that pretreatment significantly reduced soluble iron such that it did not create an issue for PFAS removal.²⁶ Although the company described ongoing

¹⁸ See Geosyntec Consultants, *Engineering Report – Treatment of Groundwater and Upgradient Seeps Water* at 17 (June 2021), <https://perma.cc/5XY6-Y628> (report included as Attachment A.5 in Chemours' GWTS application and begins on PDF page 81) (hereinafter 2021 Engineering Report). In response to our March 24, 2022 public records request, the Division responded that Chemours' report references the Outfall 003 treatability studies and that the agency had not yet received treatability studies for Outfall 004.

¹⁹ DEQ Draft Response, *supra* note 3, at 1.

²⁰ 2021 Engineering Report, *supra* note 18, at 7.

²¹ *Id.* at 16 (emphasis added).

²² *Id.* at 7.

²³ *Id.* at 15.

²⁴ *Id.*

²⁵ *Id.* at 17.

²⁶ Parsons, *Engineering Report: Old Outfall 002 GAC Pilot Study Results Addendum* at app. A (Jan. 2020), <https://perma.cc/37CY-44K9> (Appendix of conventional parameter figures).

treatability studies that would provide additional information related to the GWTS specifically, it relies on “**current operational experience at Outfall 003 elsewhere at the facility**”²⁷ to support its conclusion that the system will be effective. Chemours has demonstrated, therefore, that soluble iron will not interfere with GAC performance at the GWTS.

The Division’s insistence that soluble iron is an issue unique to Outfall 004 has no basis in fact. In the Outfall 003 Engineering Report, Chemours stated that it would include chemical precipitation “to remove iron which would otherwise cause fouling/plugging in the downstream GAC adsorption process.”²⁸ The company went on to specifically address how it will remove dissolved iron (Fe⁺²), stating that chemical precipitation “will be applied to oxidize soluble ‘ferrous’ iron (Fe⁺²), thereby transforming it to insoluble ‘ferric’ iron (Fe⁺³) which will precipitate (come out of solution) in the form of ferric hydroxide [Fe(OH)₃].”²⁹

The Division provides no evidence that iron or manganese will pose problems at the GWTS. It has not shown that chemical precipitation at the GWTS will not effectively prevent iron from interfering with the filters. Although the Division claims that “manganese acts very similar to iron and may present identical problems,”³⁰ the agency provides no explanation for this statement. Chemours did not cite manganese as an issue in its application documents. As a result, there is no evidence to support the position that manganese will not be effectively managed by the company’s pretreatment process.

The ubiquity of groundwater treatment systems that remove iron and manganese support the conclusion that Chemours’ pretreatment system will work. High levels of iron and manganese in groundwater are common, and both small and large entities regularly remove the metals from drinking water. The American Ground Water Trust describes elevated iron levels as “a common water quality issue.”³¹ It is a “common water quality issue” that is regularly addressed through filtration systems like the pretreatment planned for the GWTS. Chemours’ home filtration systems remove dissolved iron.³² The Environmental Protection Agency has recommended chemical oxidation and physical separation—the process proposed by Chemours—to treat iron and manganese.³³ Numerous companies in North Carolina offer home filtration systems that will remove iron from

²⁷ 2021 Engineering Report, *supra* note 18, at 17 (emphasis added).

²⁸ Parsons, *Chemours Fayetteville Engineering Report on Wastewater Treatability* at 8 (July 2019) <https://perma.cc/99ZS-ZEZ6>.

²⁹ *Id.*

³⁰ DEQ Draft Response, *supra* note 3, at 1.

³¹ Am. Groundwater Trust, *Solutions to Iron Problems* (2002), <https://perma.cc/PA45-C429> (originally published in THE AM. WELL OWNER, 2002, No. 3).

³² *Id.*

³³ Asher Keithley, *Session 6: Iron and Manganese Control in Groundwater Systems*, UNITED STATES EPA OFF. OF RSCH. & DEV. (Oct. 15, 2020), <https://perma.cc/4E8V-D9B4>.

groundwater.³⁴ The U.S. Forest Service has used technology to remove iron at its facilities for more than 20 years.³⁵ Minnesota advises well users that filters are effective at removing iron at levels as high as 15 mg/L,³⁶ which is significantly higher than encountered at the Chemours site.³⁷ Penn State University has offered similar guidance to well users in Pennsylvania.³⁸ Iron and manganese in groundwater is a common issue with a simple solution.

The Division's assertion that iron or manganese would prevent the GWTS from performing similarly to the Outfall 003 treatment system suffers another significant flaw—the agency has not offered any explanation as to how the proposed facility will control these metals such that it can achieve the required 99% reduction but not greater reductions. There is no evidence or analysis supporting that distinction, and the Division has not argued that Chemours will be able to effectively manage dissolved iron or manganese, but only to the extent necessary to achieve 99% reduction.

All available evidence indicates that the GWTS will achieve effluent levels as low as Outfall 003. The technology is the same. The process is the same. Chemours and the Division have relied on the same treatability analysis. The company has cited the Outfall 003 as representative of what to expect with the GWTS. The Division's reliance on hypothetical confounding factors to allow higher levels of PFAS to be discharged is arbitrary and capricious.

B. There is no evidence that higher influent concentrations will result in higher effluent concentrations.

The draft response also argues, without support, that higher influent concentrations support higher effluent limits. Higher influent concentrations will, at most, mean that the GAC in the lead chamber will be changed more frequently. Due to the basic mechanism of PFAS removal using GAC, the system will remove

³⁴ See, e.g., Culligan Water, *High Iron Water* (last updated 2022), <https://perma.cc/Y5NG-TKHJ> (describing home water treatment systems that are available to remove iron in North Carolina); N.C. Water Consultants, *Can a Water Softener Remove Iron from the Tap Water in Your North or South Carolina Home?* (May 2, 2018), <https://perma.cc/MZ35-35TD> (same); Progressive Water Sols., *Iron, Sulphur, and Manganese Removal, Durham, NC* (last updated 2022), <https://perma.cc/X3AX-D49Y> (same); Action Well & Pump, *Excessive Iron in Well Water: Hazards, Signs, & Removal Techniques* (May 5, 2021), <https://perma.cc/F4YS-9JBV> (same); John Woodard, *How to Remove Iron from Well Water*, FRESH WATER SYS. (Oct. 25, 2019), <https://perma.cc/2DYR-ZUGG> (same); Mountain Water Sys., *Softeners & Iron Filters for Your Water Issues in Asheville* (last updated 2022), <https://perma.cc/JNS2-ATKR> (same).

³⁵ Brenda Land, *Iron and Manganese in Drinking Water*, UNITED STATES FOREST SERV. (Sept. 1999), <https://perma.cc/6N3N-7FUF>.

³⁶ Minn. Dep't of Health, *Iron in Well Water* (Aug. 26, 2019), <https://perma.cc/WMP4-7Y7F>.

³⁷ See GWTS NPDES Application, *supra* note 17.

³⁸ See Brian Swistock & William Sharpe, *Iron and Manganese in Private Water Systems*, PennState Extension (2022), <https://perma.cc/K7GM-N5RW>.

PFAS until the GAC is saturated beyond the replacement threshold.³⁹ At that point, Chemours will replace the GAC in the lead chamber. Overall performance should remain consistent, if mandated by permit.

C. Permissive effluent limits allow Chemours to increase pollution.

The Division suggests in its draft response that, because Chemours has not yet released more pollution from its Outfall 003 treatment system, it will not do so in the future.⁴⁰ But that is irrelevant. Less stringent limits unequivocally allow Chemours to discharge more pollution. Lax limits cannot be salvaged by relying on the company's goodwill or through operation and maintenance plans, which are targeted at allowable limits. The facility will be designed to comply with the permit limits and once the permit is finalized, the agency does not have authority to require pollution control beyond those limits through the operation and maintenance plan.⁴¹ The limits must, therefore, be set properly.

IV. The Division Must Evaluate the Effect of New Health Advisory Levels.

Last week, EPA announced a new, final health advisory level for GenX and new interim health advisory levels for PFOA and PFOS.⁴² The new health advisory levels are substantially lower than previous levels and require the Division to evaluate compliance with the toxic substances standard.⁴³

V. The Division Must Go Beyond the Consent Order.

In general, the Division's wait-and-see approach—without any evidence showing that the GWTS would perform less effectively than the Outfall 003 system—puts the risk on downstream communities by erring on the side of allowing more pollution. The Outfall 003 system has performed exceptionally well since November 2020, demonstrating that a properly designed facility does not need a “start-up” period to remove nearly all detectable PFAS.⁴⁴ As a result, there is no basis for delaying implementation of protective limits. In fact, Chemours has met the GenX and PMPA limits proposed in our May 2022 letter in every sample taken

³⁹ See Mohammed F. Rahman, Sigrid Peldszus, & William B. Anderson, *Behavior and Fate of Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs) in Drinking Water Treatment: A Review*, 50 *Water Rsch.* 318-40 at 331-32 (2013), <https://perma.cc/JL95-EHCH>.

⁴⁰ DEQ Draft Response, *supra* note 3, at 2.

⁴¹ N.C. Dep't of Env't Quality, *Draft NPDES Permit No. NC0090042* at 23 (revised March 14, 2022), <https://perma.cc/V9CE-P8TV> (Part II, Section C, Condition 2).

⁴² EPA, *Technical Fact Sheet: Drinking Water Health Advisories for Four PFAS (PFOA, PFOS, GenX chemicals, and PFBS)* (June 2022), <https://perma.cc/E9DA-HNQL>.

⁴³ See SELC May 2022 Comments, *supra* note 1, at 12-16.

⁴⁴ To the extent a start-up period is necessary, the proper mechanism is to specify a prescribed period during which limits will not be enforced. If a start-up period is necessary, the Division should set meaningful permit limits consistent with those described in our May 2, 2022 letter and delay enforcement for two months.

at Outfall 003 since November 2020.⁴⁵ The company has met the PFMOAA limit proposed in 74 of 75 samples taken over that time period.⁴⁶ Effluent at Outfall 003 has been less than our proposed monthly average limits every month.⁴⁷ The limits are reasonable, achievable, and mandated by controlling law.

Ultimately the agency offers only one supported reason for its draft limits: they are consistent with the consent order's 99% reduction requirement. The consent order has resulted in significant reductions at the site—it cannot, however, supplant a lawful permitting analysis.

The consent order addendum that ensures Chemours' eventual groundwater treatment system would remove at least 99% of PFAS before discharging wastewater into the Cape Fear River was entered on October 12, 2020. At that time, none of the parties had effluent data that demonstrated the effectiveness of the Outfall 003 system. It was not clear that the system would work as well or as consistently as it has. Because the 99% reduction has been legally mandated since the addendum was entered, the only issue before the Division in this permitting process is whether the remaining 1% of PFAS will be controlled or discharged into the Cape Fear River.

Regrettably, the draft permit allows the entire 1%, a concentration of greater than 1,300 ppt for analyzed PFAS, to be discharged into the river. The Division ignores the available data and controlling law to allow this pollution, as laid out in more detail in our May 2, 2022 comments. Even more, those concentrations only represent a sliver of the overall impact of the discharge because there could be hundreds of other PFAS in Chemours' discharge. Chemours has identified 257 other potential PFAS at its facility that it cannot currently quantify.⁴⁸

Communities in southeastern North Carolina have endured Chemours' pollution for too long and cannot be asked to trust that the company will operate the groundwater treatment system to remove more PFAS than required. The Division must impose the most stringent limits possible. Based on extensive data from Outfall 003, those limits must be set at or near detection levels. The draft permit includes limits that are unacceptable, allow avoidable PFAS pollution, and continue to put the burden of Chemours' pollution on families downstream.

⁴⁵ Chemours 2020-2022 DMRs, *supra* note 2; SELC May 2022 Comments, *supra* note 1.

⁴⁶ Chemours 2020-2022 DMRs, *supra* note 2; SELC May 2022 Comments, *supra* note 1.

⁴⁷ Chemours 2020-2022 DMRs, *supra* note 2; SELC May 2022 Comments, *supra* note 1.

⁴⁸ Chemours Co., *PFAS Non-Targeted Analysis and Methods Interim Report: Process and Non-process Wastewater and Stormwater* at 4 (June 30, 2020), <https://perma.cc/5M7A-B6RJ>.

Thank you for your consideration of these comments. Please do not hesitate to contact us at 919-967-1450 or via email (ggisler@selcnc.org) to discuss this matter further.

Sincerely,

A handwritten signature in black ink, appearing to read "Geoff Gisler".

Geoff Gisler
Senior Attorney

A handwritten signature in black ink, appearing to read "Jean Zhuang".

Jean Zhuang
Staff Attorney

cc:

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