

Responses to the Comments

Chemours Permit NC0089915

September 11, 2020

In order to reduce PFAS loading to the Cape Fear River, this Permit requires the treatment of dry weather base flow from a contaminated stream. This stream, often referred to as “Old Outfall 002,” was used to discharge process wastewater from the facility prior to June 2012, when the process wastewater discharge was relocated to the current outfall location (permit NC0003573) above Lock and Dam #3 in the Cape Fear River. The treated stream base flow, covered in this permit, will be discharged from Outfall 003 which will be located downstream of the capture dam, and will flow from the channel into the Cape Fear River below Lock and Dam #3. The flow from Outfall 003 must be treated to remove at least 99% of the PFAS in the stream. This removal efficiency will be demonstrated through measurements of indicator parameters HFPO-DA (GenX), PFMOAA, and PMPA. The issuance of this permit will allow Chemours to begin remediation of the stream and without the permit, the contaminated surface water will continue to discharge to the Cape Fear River untreated.

SELC Comments

Comment:

Technology-based effluent limits must be based on the reductions achievable by the technology.

Response:

The DEQ has used professional judgement and experience in establishing Technology Based Effluent Limits for GenX, PMPA, and PFMOAA after evaluation of all data presented in the engineering report.

1). Review of the Engineering Report and Addendum to the Report indicates that the effluent concentrations of indicator PFAS compounds (PFMOAA and HFPO-DA) are highly variable depending on the type of the GAC used and other factors. PFMOAA concentration varies from <10.6 ng/L to 31,059 ng/L and HFPO-DA varies from <11.7 ng/L to 4,622 ng/L. Such a significant variation shows that even under tightly controlled laboratory conditions the treatment technology must be optimized for the facility to meet the permit limits, which are much closer to the lower end of the identified range of the effluent concentrations (60 ng/L for HFPO-DA and 850 ng/L for PFMOAA). Moreover, these numeric standards serve as a backstop to the requirement that Chemours control PFAS indicator parameters at an overall efficiency of 99%.

2). The study performed by the consultants was conducted under predictable and controlled laboratory conditions on a small scale during a short time period. When this technology is implemented in the field, there will be additional complications that could have a negative impact on the performance, including: variation in temperature (daily and seasonal); variations in the influent pH, volume, TSS, oxidation-reduction potential, additional chemical compounds impacting GAC, etc. Additional difficulties might be encountered during scaling-up the technology from the lab to the field.

3). In addition, the facility will encounter substantial treatment difficulties as the influent concentration of the PFAS compounds decreases. Consistent removal of 99% of the compounds in the influent becomes more difficult as the wastewater coming to the treatment system becomes less polluted. The DEQ has observed these difficulties with numerous facilities and parameters.

4). When EPA develops Effluent Guidelines, they rely on the data obtained from implemented and successfully operating technologies. For example, the latest update for the 40 CFR 423 (Power Plants) was based on the multiyear data collection from existing facilities in North Carolina and in other states and countries. In this case, the application of the treatment system is new and DEQ does not have reliable field data from any other similar facility, which significantly increases uncertainty, and diminishes our ability to reliably predict the PFAS effluent concentrations.

5). In addition, EPA recommends using the 95th percentile for Monthly Average limits that are based on the performance when the Effluent Guidelines are not available. The proposed limits are even tighter since Monthly Average and Daily Maximum limits in this permit are based on the 99th percentile.

6). The DEQ proposes to re-evaluate the data after 3 years of the GAC treatment system operations. The DEQ will reduce the limits if the facility demonstrates ability to consistently achieve levels that are lower than the proposed limits. It is necessary to emphasize that the wastewater treatment operations need time to optimize their performance. It is especially important for a new technology with a very limited application history.

7). The permit requires the facility to meet the permit limits and other terms and conditions regardless of the maintenance and replacement schedules. The facility is authorized to make decisions regarding wastewater treatment that will result in achieving full compliance with the permit limits.

The fact sheet is not an enforceable document. It simply describes operation of the treatment system and provides the rationale for the permitting decisions.

Comment:

The draft permit limits allow for inadequate pollution control.

Response:

Please see responses to the first comment.

Comment:

The Draft Permit Limits Are Too High, Particularly Considering the Historic Exposure of Downstream Communities.

Response:

The DEQ established the limits based on the ability of the existing technology to treat the wastewater. Furthermore, the numeric limits serve as a backstop to the Consent Order requirement that Chemours remove PFAS at an efficiency of 99%. Please see responses to the first comment.

Comment:

The Permit Must Include a Condition to Control Other PFAS if Monitoring Reveals That Reductions in the PFMOAA, GenX, and PMPA Do Not Represent Reductions in the Full Suite of PFAS.

Response:

The Engineering Report provided by the facility clearly demonstrates that the chosen indicator parameters represent the most difficult PFAS compounds to be treated because they are the short-chained molecules and if they are removed at 99% rate the other PFAS compounds will also be removed at a 99% rate or higher.

The permit contains provision that allows DEQ to re-evaluate performance of the facility and make necessary changes to the permit.

Comment:

The Permit Cannot Allow for Less Than 99 Percent Removal of PFAS.

Response:

The Permit does not currently allow for less than 99% removal of PFAS. As the concentration of the PFAS compounds in the influent decreases, the ability of the treatment system to remove contaminants also decreases. This statement is true for the vast majority of the contaminants. Therefore, the permit provides the facility an opportunity to request revisions to the permit condition that require 99% removal efficiency. The DEQ will evaluate such a request and make a decision based on the available data. Even if such a request is granted, the numeric effluent limits will be maintained. These numeric limitations represent Technology Based Effluent Limits and they will not be violated by changing removal efficiency requirements.

Comment:

DEQ Must Do More.

Response:

This comment is outside of the issues related to the subject permit.

CFPUA and Brooks Pierce Comments

Comment:

Chemours' draft NPDES Permit would allow the discharge of 1.5 million gallons per day of wastewater resulting from a proposed treatment system for old Outfall 002 with a total concentration of 954 ppt of GenX, PFMOAA, and PMPA. There is no limit on the total mass of these compounds that can be discharged. CFPUA objects to excessive concentration of these compounds that can be discharged and failure to limit the mass that can be discharged.

Response:

The DEQ is not authorizing the discharge of any additional wastewater into the Cape Fear River. Rather, this permit requires the removal of PFAS from a contaminated stream that is already discharging into the Cape Fear River.

The DEQ established permit limits that are based on the engineering evaluation of the treatment system that controls PFAS pollutants. The Clean Water Act requires that DEQ protects the receiving stream from the toxic impacts of the effluent. The toxic impact evaluation relies on the concentration-based water quality standard promulgated by the state and concentration-based water quality criteria promulgated by the EPA. To achieve this goal, the Draft Permit contains concentration-based limits. The mass-based limits are typically implemented when the Federal Effluent Guidelines exist for a particular industry or as a result of the TMDL. There are no applicable Federal Effluent Guidelines or TMDLs here.

Comment:

CFPUA objects to the high limits set for the three compound listed and the absence of limits on the remaining Full Suite of PFAS compounds.

Response:

The Engineering Report provided by the facility clearly demonstrates that chosen indicator parameters represent the most difficult PFAS compounds to be treated because they are the short-chained molecules and if they are removed at 99% rate the other PFAS compounds will also be removed at 99% rate or higher.

Hence, by imposing 99% removal efficiency on these indicator parameters the DEQ also imposes 99% removal efficiency on all PFAS compounds contained in the effluent.

Comment:

Why did DEQ decide not to establish limits for the other 17 PFAS compounds in Table 3+?

Response:

The DEQ has chosen three indicator parameters that have short-chained molecules that are present in high concentrations and are the most difficult to remove. Experiments indicate that if they are removed at 99% rate the other PFAS compounds will also be removed at 99% rate or higher.

Comment:

The proposed treatment system is to be completed by September 30, 2020. Yet Chemours already is admitting that it cannot meet the effluent limits by that time for PMPA, one of the three compounds that have effluent limits in the permit. Instead, Chemours is asking for more time, until January 31, 2021.

Response:

The additional time is needed for installation of a sufficient capacity to the treatment system to ensure 99% removal efficiency for all PFAS compounds. However, this delay will not have a significant impact on the overall PFAS load reduction. Also, even the existing system will be removing PMPA from the effluent with approximately 98% efficiency during the additional time needed to meet the 99% target.

Comment:

CFPUA objects to the inadequate baseline used to develop this permit.

Design of the treatment system was based on a "single 24-hour composite influent sample," which hardly gives confidence in the potential effectiveness.

Response:

Despite the limited data set, the facility is still obligated to meet numeric limits and 99% removal efficiency requirements for three indicator parameters. The implementation of this permit would result in removal of approximately 20% of the overall PFAS load from the Chemours facility to the Cape Fear River.

The DEQ will re-evaluate the effluent limits after collecting long-term data.

Comment:

CFPUA objects to the issuance of this permit without clarity on how backwash water will be handled.

Response:

The Supplement to the Permit Cover Sheet (page 2 of the permit) has been expanded to state that only treated backwash can be discharged from Outfall 003.

The Fact Sheet explains that the treatment design includes Ultrafiltration (UF) pretreatment before the Granular Activated Carbon (GAC) stage. The UF will perform the role of solids removal upstream of the GAC units. The UF back pulse waste recycle will be captured in a weir tank to allow solids to settle and then will be recycled through the system after being pumped back to the influent oxidation/coagulation /pH adjustment tank. The settled solids in the weir tank (the back-pulse waste recycle tank) will be drawn off by a sludge pump and filtered in downstream removal processes (thickener and rotary-fan filter press).

In addition, while the Fact Sheet recognizes that the GAC units have backwashing capability, Chemours only plans to backwash a GAC unit when installing virgin carbon during the change

out, about once every 3-6 months. This backwash water will be discharged to the weir tank to allow solids to settle as described above.

The permit allows the facility to discharge wastewater only after treatment and when it meets effluent limits. These conditions apply to the backwash.

Comment:

The removal efficiency is to be calculated only monthly, even though samples are collected twice per month. CFPUA objects to this permit only requiring calculation of removal efficiency once per month.

Response:

The removal efficiency calculation is based on the long-standing implementation structure of the Clean Water Act that requires monthly submission of the Discharge Monitoring Reports. It allows for the time needed for sample shipment and analysis.

Comment:

CFPUA believes the discharge to the Cape Fear River should be limited to the same 70/10 analysis that applies to what is considered safe water that is being withdrawn by neighboring groundwater users.

Response:

Effluent limits and other conditions in the permit are based on the federal and state NPDES regulations and surface water standards.

Environment North Carolina Comment

Comment:

NCDEQ should consider including conditions with more stringent limits.

Response:

The DEQ believes that the proposed limits adequately represent the ability of the treatment system to remove PFAS compounds. This conclusion is based on limited available data. DEQ will re-evaluate these limits after the long-term performance data are collected.

Chemours Comments

Comment:

The effluent limits and 99% removal efficiency requirement for PMPA are arbitrary and not provided for in the Consent Order.

Response:

The Consent Order identifies PFMOAA and GenX as “indicator parameters” that are intended to be reflective of reductions in all PFAS at the facility. In addition, the Renewal Application submitted by Chemours clearly stated that “Treatment testing demonstrated that other PFAS compounds in the Table 3+ and EPA Mod 537 Max analyses were removable by at least 99% when PFMOAA and HFPO-DA are removed by 99%”. Furthermore, to the extent the permit imposes requirements in addition to those set forth in the Consent Order, the DEQ has the legal authority to go above and beyond the terms of the Order

Comment:

The daily maximum effluent limits for PFAS indicator parameters should not be set equal to the monthly average effluent limits.

Response:

The DEQ is required by 40 CFR 122.45 (d) to establish daily maximum limitations. The facility recommends for DEQ to use long-term data. However, this information is not available since this is a new treatment system. In the absence of the long-term data, the DEQ must use the same number for Daily Maximum and Monthly Average limits.

Comment:

The effluent limits for PFAS indicator parameters should not be adjusted to become more stringent after three years.

Response:

The decision to modify effluent limits has not been made. It is contingent upon comprehensive evaluation of the long-term performance data. It is premature to speculate about potential future decisions.

The limits established in this permit are based on the limited data set and future modifications might be needed to reflect the true operational efficiency of the treatment system.

Comment:

The PFAS monitoring requirements in Permit section A.(5.) should be revised.

Response:

The monitoring frequency in the permit is established to fully evaluate impact of the facility on the receiving stream, efficiency of the treatment system, and facility's compliance. The frequency is consistent with other facilities in similar circumstances and cannot be reduced until the long-term data is obtained.

If the permit conditions are redundant to the Consent Order, the facility does not have to repeat sampling. It can report the same results to satisfy sampling requirements of both documents. In addition, the permit for the facility is issued for 5 years and the Consent Order might be terminated prior to that date. Therefore, instream sampling requirements shall remain in the permit.

In regard to the four compounds (DFSA, MMF, MTP, and PPF Acid) that are difficult to accurately measure, the permit can be modified with the appropriate condition.

Comment:

Chemours requests that DEQ add a provision to the Permit allowing Chemours to apply to DEQ for modifications of the PFAS monitoring requirements, based on monitoring results or analytical method changes.

Response:

The facility already has the right to apply for modifications under the existing rules and regulations. Incorporating such statement in the permit is redundant and unnecessary.

Public Comments

We also received 28 comments from individual citizens or families; 26 letters oppose the permit and 2 support the permit. Most of the opposition is absolute; they don't want permit to allow any discharge. However, there are a few comments that want to reduce permit limits to 20 ppt, although this number is not explained.

Many comments are not directly related to the permit. They request installation of in-house filters, establishment of a compensation fund, addressing general water quality issues, etc. These comments have been counted as opposing the permit.