



Submissions to the State of North Carolina and Cape Fear River Watch

The following table identifies submissions made by Chemours pursuant to the Consent Order and Addendum (“COA”) for the period of October 1, 2020 through the end of the fourth quarter on December 31, 2020.¹

CO Section	Title	Submitted Date
11	Final Quarterly Report for Initial Characterization of PFAS	12/18/2020
11.2	Sediment Characterization Report	10/23/2020
11a	PFAS Non-Targeted Analysis & Methods Interim Report #2	12/31/2020
12/ COA 1	Updated Cape Fear River and Outfall 002 PFAS Mass Loading Calculation Protocols and Responses to NCDEQ Comments	11/18/2020
12/ COA 1b	Cape Fear River PFAS Mass Loading Assessment - Third Quarter 2020 Report	12/23/2020
12/ COA 2c	Onsite Seeps Long-Term Loading Calculation Plan	10/30/2020
12/ COA 4d	Outfall 002 Channel Near DuPont Groundwater Upwelling Investigation Report	11/30/2020
28	Quarterly Progress Report	10/28/2020

¹ Consent Order submissions by Chemours from lodging of the Proposed Consent Order in November 2018 through March 31, 2019 were presented in the 2019 1st quarter report, April 1, 2019 through June 30, 2019 in the 2019 2nd quarter report, July 1, 2019 through September 30, 2019 in the 2019 3rd quarter report, October 1, 2019 through December 31, 2019 in the 2019 4th quarter report, January 1, 2020 through March 31, 2020 in the 2020 1st quarter report, April 1, 2020 through June 30, 2020 in the 2020 2nd quarter report, and July 1, 2020 through September 30, 2020 in the 2020 3rd quarter report.



2020 Fourth Quarter Residential Summary

Item	Cumberland County (East of River)	Cumberland County (West of River)	Bladen County (East of River)	Bladen County (West of River)	Robeson County	Total
Total Number of Residences Sampled	192	377	19	8	67	663
Residences Exceeding GAC Criteria (GenX \geq 140 ng/L)	1	0	1	1	0	3
Residences Exceeding RO Criteria (Σ PFAS \geq 70 ng/L)	54	44	2	4	16	120
Residences Exceeding RO Criteria (PFAS \geq 10 ng/L)	99	113	3	1	31	247
Residences Drinking Water Well Detections (Results $<$ 10 ng/L)	20	129	2	1	7	159
Residences Drinking Water Well Non-Detections	18	91	11	1	13	134



Replacement Drinking Water Actions

(Replacement drinking water actions from November 2018² - December 31, 2020)

Summary		Number of residents on bottled water	GAC Systems On-line & Confirmation Sampling Complete	Number of Homes Where RO Systems Installed
	Total		2474	98

Bottled Water		Residences Eligible for Bottled Water	Already connected to Public Water	Eligible Residences Receiving Bottled Water
	Q4 2020		461	0
Total		2474	148	2474

GAC		Residences Eligible for GAC	Already connected to Public Water	Public Water Readily Available	Public Water Feasible	Residents Declined GAC System	GAC Systems to Install	Number of Residences Responded to GAC Offer (Interview Conducted or Declined Offer)	
	Q4 2020		3	Data Not Available	Data Not Available	Data Not Available	0	3	2
	Total		256	26	Data Not Available	Data Not Available	4	126	114
GAC		Number of GAC Systems to Install but Resident has Not Responded to Offer	System On-line	Confirmation Sampling Complete	GAC Offer Letters Sent to Residents	Call Log Interactions with GAC Residents	GAC Residence Response Rate		
	Q4 2020		Not Applicable	11	14	3	291	Not Applicable	
	Total		106	101	98	256	3044	44%	

RO		Residences Eligible for RO (includes homes with shared wells)	Number of Residences Responded to RO Offer	Residents Declined RO	Homes/Buildings where RO Systems to be Installed but Resident has Not Responded	RO Residence Response Rate	
	Q4 2020		470	907	1	182	Not Applicable
	Total		4224	2510	82	1524	59%
RO		Number of Homes where RO Systems Installed	Homes/Buildings where RO Systems are to be Installed	Number of RO Offer Letters Sent to Residences	Call Log Interactions with RO Residents		
	Q4 2020		440	470	470	3185	
	Total		1602	2418	4224	15479	

² The date the proposed Consent Order was lodged.

Consent Order Progress Details

This section summarizes the activities that have been undertaken by Chemours pursuant to the Consent Order Compliance Measures and Addendum for the period from October 1, 2020 through the end of the fourth quarter of 2020 (December 31, 2020). On August 13, 2020, Chemours signed the Addendum to Consent Order Paragraph 12, and the Addendum was entered by the Bladen County Superior Court on October 12, 2020.

Section 7 Control Technology Improvements

The thermal oxidizer (see photo at right) continues to control process emissions at an average PFAS destruction efficiency exceeding 99.99%.



Section 8 GenX Emissions Reduction Milestones

A report will be submitted by February 28, 2021 to demonstrate compliance with the requirement for 99% reduction from 2017 total reported GenX emissions.

Section 10 No Discharge of Process Wastewater from Chemours' Manufacturing Areas

Chemours does not discharge its process wastewater and instead collects and ships its process wastewater offsite for disposal. Chemours is recycling treated water internally within several manufacturing processes.

Section 11 Characterization of PFAS in Process and Non-Process Wastewater and Stormwater at the Facility

Chemours submitted the Paragraph 11(c) Initial Characterization – Final Quarterly Report, prepared by its consultant Geosyntec, on December 18, 2020. The final report summarized the findings of the Paragraph 11(c) sampling events collected during the 18-month initial characterization period from April 2019 to September 2020, and provided recommendations for transitioning to Paragraph 11(d), Ongoing Sampling. Two additional sampling events were conducted under Paragraph 11 on October 7, 2020 (the October 2020 event) and during November 11 - 17, 2020 (the November 2020 event). Samples were collected from 22 locations during the October 2020 event and from 30 locations during the November 2020 event. Results from these sampling events will be reported in the first semi-annual report of Paragraph 11(d).

Chemours submitted the PFAS Non-Targeted Analysis and Methods Interim Report #2 to DEQ on December 31, 2020. The report describes progress and next steps in the characterization of unknown PFAS in General Facility Discharge samples and in Chemours Process Wastewater samples.

Section 11.2 Characterization of PFAS Contamination in River Sediment

Chemours submitted the Sediment Characterization Report, prepared by its consultant Geosyntec, to DEQ, Cape Fear River Watch, and downstream water utilities on October 23, 2020. The report describes the characterization of PFAS in Cape Fear River sediments upstream, adjacent to and downstream of the facility.

Section 12 Accelerated Reduction of PFAS Contamination in the Cape Fear River and Downstream Water Intakes, and Addendum to Consent Order Paragraph 12

During the fourth quarter, following startup on September 30, 2020, Chemours continued operation of the treatment system for the Old Outfall (Outfall 003) pursuant to Consent Order Paragraph 12(e) and a NPDES permit issued by NCDEQ.

As noted above, the Addendum to Consent Order Paragraph 12 was signed in the third quarter of 2020 and entered by the Court during the fourth quarter of 2020. Chemours' Addendum implementation activities during the fourth quarter included:

Consent Order Addendum Paragraph 1

On November 18th, Chemours submitted to DEQ responses to comments on the Cape Fear River and Outfall 002 mass loading protocol documents along with revised versions of both documents. On December 23rd, Chemours submitted to DEQ the Cape Fear River PFAS Mass Loading Assessment – Third Quarter 2020 Report pursuant to Consent Order Addendum Paragraph 1(b). This submission was also pursuant to quarterly reporting of mass loading sampling outlined in the Corrective Action Plan (Paragraph 16). During the week of December 14, 2020, Chemours contractors performed the first monthly monitoring for the mass loading model pursuant to the mass loading protocol based on verbal approval from DEQ, beginning the 12-month long monthly sampling required by Consent Order Addendum Paragraph 1(b).

Consent Order Addendum Paragraph 2

On October 30th, Chemours submitted the Onsite Seeps Long-Term Loading Calculation Plan describing how the mass loading baseline for the onsite seeps would be established and how compliance with the long-term seep remediation objective would be monitored and demonstrated.

During the fourth quarter of 2020, Chemours completed construction of the Seep C flow-through cell, i.e., the interim remediation system at Seep C. The Seep C flow-through cell became operational, treating water from Seep C on December 16, 2020.

During the fourth quarter, for the remaining seeps (A, B, and D), Chemours submitted permit applications in October and received authorization to commence construction activities in the stream beds on December 29.

Consent Order Addendum Paragraph 3

During the fourth quarter of 2020, Chemours conducted pre-design investigation activities for the groundwater remedy. Activities completed included soil borings to assess soil characteristics with depth, installation of additional monitoring wells, aquifer pumping tests, additional surface water sampling, and passive flux meter measurements for PFAS.

During the fourth quarter of 2020, Chemours completed the construction of the Black Creek Aquifer interim measure system to extract groundwater from the seven existing Black Creek



Aquifer monitoring wells (BCA-01, BCA-02, PW-11, PW-14, PW-15R, PIW-9D, and PW-10DR). The system was started on November 30, 2020.

Consent Order Addendum Paragraph 4

Chemours initiated stormwater and non-contact cooling water separation efforts in the Monomers IXM area during the annual facility turn-around in October 2020. The water types are being separated to facilitate the treatment of stormwater pursuant to Consent Order Addendum Paragraphs 4(a) through (c). During the 2020 facility turn-around Chemours also removed sediment from the Open Channel to Outfall 002 which had accumulated since the removal of sediment during the 2019 facility turn-around.

On November 30, 2020, Chemours submitted to DEQ the Outfall 002 Channel Near DuPont, Groundwater Upwelling Investigation Report pursuant to Consent Order Addendum Paragraph 4(d).

Section 14 Toxicity Studies

Chemours has all five Consent Order Attachment B substances synthesized. The rat and mouse pilot study in-life phase was completed for four of the five substances. The remaining substance is being further purified to reduce the concentration of an impurity. The data from the rat and mouse pilot studies are being analyzed and draft reports are being written by the contract lab. The reports for two substances were approved for finalization in December 2020. Additionally, the analytical development for the dose analysis method for the Consent Order studies is in progress. The draft protocols for the aquatic toxicology work were submitted for approval to NCDEQ in December 2020 as well.

Section 16 Groundwater Remediation

On December 23rd, Chemours submitted to DEQ the Cape Fear River PFAS Mass Loading Assessment – Third Quarter 2020 Report pursuant to Consent Order Addendum Paragraph 1(b). This submission was also pursuant to quarterly reporting of mass loading sampling outlined in the Corrective Action Plan (Paragraph 16). Ongoing groundwater remediation activities are being conducted pursuant to Consent Order Addendum Paragraph 3 and are described earlier in this document under that paragraph.

Sections 19 and 20 Provision of Public Water Supplies, Whole Building Filtration Systems, and Reverse Osmosis Drinking Water Systems

As shown in the summary tables above, Chemours continues to make significant progress in implementing the Consent Order requirements of Paragraphs 19 and 20. Since resuming RO installations in June 2020, following the COVID-19 postponement period, the pace of RO acceptance rates and installations has been on the rise. O&M activities for installed GAC systems continues uninterrupted. Bottled water services continue uninterrupted for 2,474 homes. Chemours continues discussions with both Bladen and Cumberland Counties regarding public water options.

Section 21 Private Well Testing

To date, 9,962 residences have been identified within the current study area, of which 5,575 have been sampled and 3,324 residences have received at least one initial sample offer letter. Results of sampling that occurred throughout the fourth quarter (663 residences) are presented at the beginning of this progress report. Four of the sectors (Sectors 4, 6, 8 and 9) have been delineated (i.e., no further step-out is needed for these sectors) and an additional five sectors (Sectors 3, 5, 7, 14, and 15) are near delineated (results pending). Current Step-out and Infill distance intervals range from 2.5 miles to 14.5 miles from the Site. Results for some of the current Step-out and Infill areas are still pending.



Section 22 Provision of Sampling Results

Chemours provided (and continues to provide) sampling results to NCDEQ and residents as required under the Consent Order. Chemours has provided sampling results to NCDEQ by sending a courtesy email notification and by uploading sampling results to the state Equis database. Chemours has also provided final lab reports to NCDEQ. Chemours has provided sampling results to residents by including preliminary results with water filtration system initial offer letters and sending the final lab reports to residents within the following 30 days. Chemours has also provided non-detect sampling results to residents.

Section 23 Interim Replacement of Private Drinking Water Supplies

All residences eligible to receive the interim replacement drinking water supplies have received the supplies (i.e., bottled water or voucher card for bottled water). As of December 31, 2020, there are 2,474 residences receiving bottled water services.

Section 26 Total Organic Fluorine

Please see Appendix A for the quarterly progress report from Dr. Susan D. Richardson.

Section 28 Reporting

Chemours submitted the Consent Order 3rd quarter 2020 progress report on October 28, 2020.

Sections 29 and 30 Public Information

Chemours has continued to post its Consent Order submissions at <https://www.chemours.com/Fayetteville-Works/en-us/c3-dimer-acid/compliance-testing/>.

Appendix A

5th Progress Report
Development of a Total Organic Fluorine (TOF) Method for the Analysis of Process
Wastewater Streams and Air from Fayetteville Works (NC)
Susan D. Richardson, Danielle C. Westerman, Alexandria L. Forster, University of South
Carolina
December 20, 2020

Since the last progress report on September 29, 2020, there have been several updates to the Adsorbable Organic Fluorine (AOF) extraction technique, the start of optimizing an Extractable Organic Fluorine (EOF) extraction technique, and the optimization of an absorption solution for post sample combustion.

1. Adsorbable Organic Fluorine (AOF)

Since September, more experiments have been completed in which the sample pH values have been varied for the purpose of improving the adsorption of target compounds to the activated carbon columns. Experiments have also been completed with varying rinsing solution compositions through the activated carbon columns in order to optimize inorganic fluorine removal. Results of these experiments have thus far shown an increase in percent recovery of organic fluorine.

2. Extractable Organic Fluorine (EOF)

Up until September, experiments were focused on optimizing the AOF extraction technique, but since then, optimization of the second extraction technique, EOF, has begun. Several solid phase extraction cartridges have been compared for their inorganic fluorine removal and percent recovery of PFAS compounds. The extract from the experiments will also be analyzed by liquid chromatography mass spectrometry. Future experiments will be focused on optimizing the parameters outlined in Figure 1.

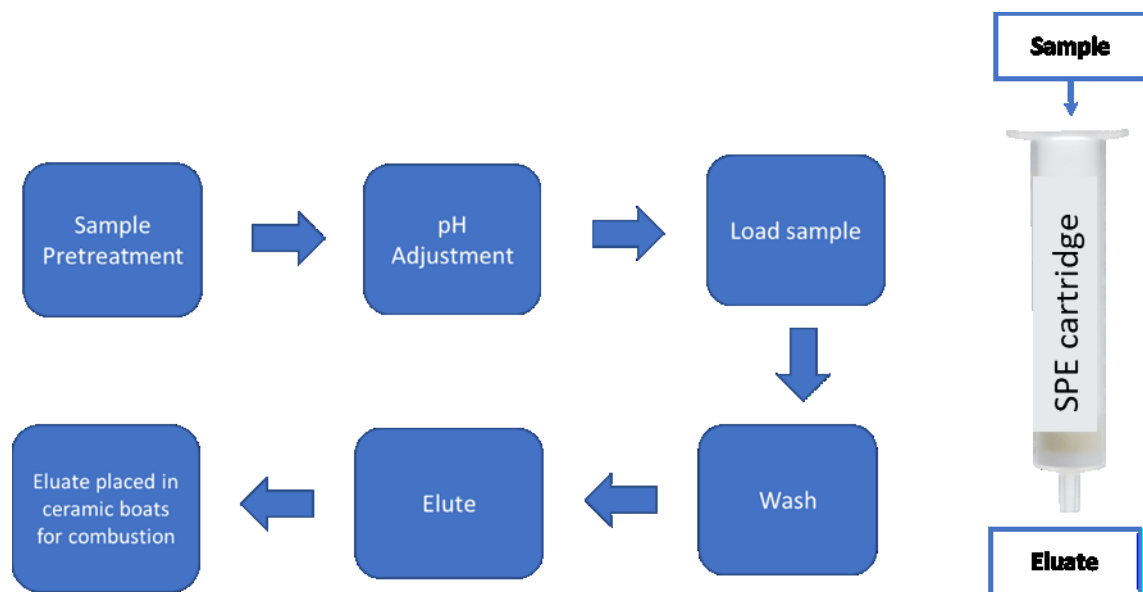


Figure 1. Several of the main method parameters that will be optimized for the EOF extraction technique.

3. Absorption Solution

After combustion, the gas effluent is bubbled into an absorption solution. Several experiments were completed with varying compositions of this solution in order to improve the percent recovery of organic fluorine.