



Geosyntec Consultants of NC, P.C.  
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# CAPE FEAR RIVER PFAS MASS LOADING ASSESSMENT – FOURTH QUARTER 2023

## Chemours Fayetteville Works

*Prepared for*

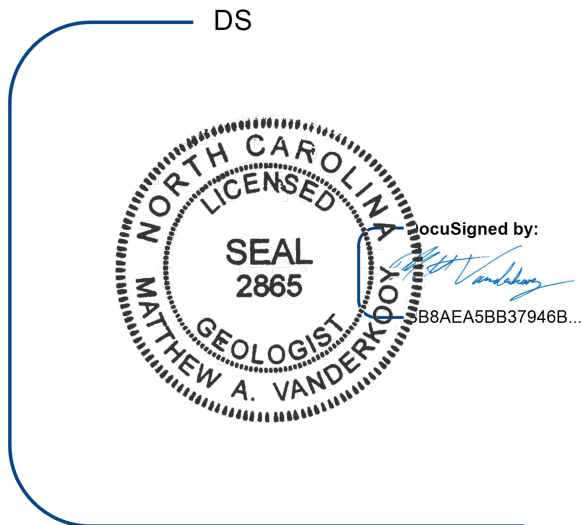
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## LIST OF ABBREVIATIONS

cfs	cubic feet per second
CO	Consent Order
CO Addendum	Addendum to Consent Order Paragraph 12
DVM	Data Verification Module
FTC	flow through cell
GWTP	groundwater treatment plant
HDPE	high-density polyethylene
HFPO-DA	hexafluoropropylene oxide-dimer acid
kg	kilograms
lbs	pounds
LDPE	low-density polyethylene
MG	million gallons
mg/s	milligrams per second
ng/L	nanograms per liter
NCDEQ	North Carolina Department of Environmental Quality
PFAS	per- and polyfluoroalkyl substances
PFHpA	perfluoroheptanoic acid
Q1	first quarter
Q2	second quarter
Q3	third quarter
Q4	fourth quarter
SWTS	stormwater treatment system
USEPA	United States Environmental Protection Agency



# 1 INTRODUCTION

Geosyntec Consultants of NC, P.C. (Geosyntec) has prepared this *Cape Fear River PFAS Mass Loading Assessment - Fourth Quarter 2023 Report* for The Chemours Company, FC, LLC (Chemours). This report provides monitoring and assessment results pursuant to the requirements of paragraphs 1(a) and 1(b) of the Addendum to Consent Order paragraph 12 (CO Addendum) and paragraph 16 of the executed Consent Order (CO) (dated February 25, 2019) between the North Carolina Department of Environmental Quality (NCDEQ), Cape Fear River Watch, and Chemours. The CO Addendum requires sampling the Cape Fear River and mass loading transport pathways for the per- and polyfluoroalkyl substances (PFAS) compounds listed in Attachment C of the CO (Geosyntec 2020a). This is the 16<sup>th</sup> report prepared since the first quarter (Q1) 2020.

## 1.1 Site Remedies

Chemours operates the Fayetteville Works facility in Bladen County, North Carolina (the Site) (Figure 1). The Site is within a 2,177-acre property at 22828 NC Highway 87, approximately 20 miles southeast of the city of Fayetteville.

Since October 2020,<sup>1</sup> Chemours installed multiple remedies to capture PFAS at the Site and to prevent PFAS from reaching the Cape Fear River. These remedies include two treatment systems, four on-site seeps interim flow-through cells (FTC), the groundwater extraction and barrier wall remedy, and the barrier wall. The start date of operation of each remedy are as follows:

- Outfall 003 treatment system<sup>2</sup> (October 1, 2020)
- Seep C FTC (December 16, 2020)
- Seep A FTC (April 28, 2021)
- Seep B FTC (June 8, 2021)
- Seep D FTC (June 24, 2021)
- Outfall 002 stormwater treatment system (SWTS) (June 30, 2021)<sup>3</sup>
- Barrier wall (June 11, 2023)
- Groundwater Extraction (March 14, 2023)

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<sup>1</sup> There have been numerous other interim and permanent actions taken to limit PFAS reaching the Cape Fear River prior to Q1 2023, i.e., air abatement measures (installation of the thermal oxidizer and carbon beds, etc.), grouting of the terracotta pipe, sediment removal from onsite channels, among others, and these may not be reflected in the captured mass load calculations but should be considered in the overall assessment of PFAS reductions.

<sup>2</sup> Previously referred to as Old Outfall 002 treatment system

<sup>3</sup> Diversion sumps in the Monomers/IXM area capture stormwater flows that would otherwise flow to Outfall 002 and transfers the stormwater to the SWTS for treatment. The diversion sumps and SWTS are designed to convey and then treat stormwater from storm events up to 1-inch over 24-hours. Further details on the SWTS are provided in the Stormwater Treatment System Capture and Removal Efficiency Report (Geosyntec, 2021a).

- Seep Ex-situ Capture Systems (April 20, 2023)

One year of monthly sampling of the mass loading model pathways per CO Paragraph 1(b) was completed in December 2021. Starting in January 2022 (Q1 2022), quarterly sampling of the mass loading model pathways was initiated and will continue for a period of 4 years (through Q4 2025), as outlined in the *Cape Fear River Mass Loading Calculation Protocol Version 2* (Geosyntec 2020a).

## 1.2 Monitoring and Report Objectives

This report presents data collected and analytical results for the fourth quarter 2023 (Q4 2023; October through December 2023) PFAS mass-loading assessment of the Cape Fear River. The primary objectives of the monitoring are as follows:

1. Assess the PFAS mass loads reaching the river primarily using the analytical results of the composite samples collected in the Cape Fear River at Tar Heel which is approximately 7 miles downstream of the Site (Figure 2).
2. Assess the PFAS mass loads that are being prevented from reaching the Cape Fear River by the remedies that have been implemented.
3. Evaluate the decrease in the rolling four-quarter PFAS mass loads in the Cape Fear River established using composite samples at Tar Heel to the Cape Fear River baseline mass load.

Along with presenting the results of the composite sampling conducted at Tar Heel, this report also presents the results of the grab samples collected at three downstream locations along the Cape Fear River: Bladen Bluffs, Tar Heel, and Kings Bluff Intake Canal (Kings Bluff) (Figure 3). The Tar Heel and Bladen Bluffs locations are within 2 miles of each other. The Kings Bluff location is farther away from the Site (48 miles downstream from Tar Heel).

This report also summarizes the surface water and groundwater sampling (Figures 3 and 4) that was conducted to estimate the PFAS loadings from the different PFAS transport pathways to the Cape Fear River, as identified in the conceptual site model (Figure 5) (Geosyntec 2019). As per Paragraph 1(b) of the CO Addendum, this sampling event was conducted during a wet weather event (i.e., rain event: >0.5 inches of rainfall), and the river stages and flows measured at W.O. Huske were much higher than previous dry weather events<sup>4</sup>. The estimated PFAS loadings were modeled for this current reporting period using the Q4 2023 data and the mass loading model. A summary of the mass loading model is presented in this report, and the scope and analysis are in Appendix A.

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<sup>4</sup> The Q4 2023 event was the second wet weather event performed in 2023. Two wet weather events were conducted in 2023 because an attempt was made to collect samples from the model pathways during a wet weather event in 2022, but coordination of field sampling with a predicted rain event was not achieved.

The results are presented as three PFAS groupings and presented in Table 1: Total Table 3+ (17 compounds)<sup>5</sup>, Total Table 3+ (18 compounds), Total Table 3+ (21 compounds), and Total Attachment C (Geosyntec 2020b). Although the report tables include results for Total Attachment C, Total Table 3+ (18 compounds), and Total Table 3+ (21 compounds), the text, tables, and figures of this report focus on the Total Table 3+ (17 compounds) PFAS grouping.

### 1.3 Report Organization

The remainder of this report is organized as follows:

- Section 2 presents details of the field work conducted (e.g., samples collected, measurements taken) and the laboratory analyses completed.
- Section 3 presents the sampling results.
- Section 4 presents the mass load results, the mass discharge calculations, and a comparison to the Total PFAS baseline mass load as described above.
- Section 5 provides a summary and conclusions of the Q4 2023 mass load assessment.

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<sup>5</sup> Total Table 3+ PFAS concentrations are calculated and presented three ways in this report: (i) summing over 17 of the Table 3+ compounds “Total Table 3+ (17 compounds)”, i.e., excluding results of PFHpA, R-PSDA, Hydrolyzed PSDA, R-EVE, and PFPrA; (ii) summing over 18 of the Table 3+ compounds “Total Table 3+ (18 compounds)”, i.e., excluding results of PFHpA, R-PSDA, Hydrolyzed PSDA, and R-EVE; and (iii) summing over 21 of the Table 3+ compounds “Total Table 3+ (21 compounds)”, i.e., excluding results of PFHpA.

## 2 SAMPLING ACTIVITIES AND LABORATORY ANALYSIS

The field work associated with collecting data for this Q4 2023 mass load assessment was completed by Parsons of NC (Parsons) and Geosyntec from October 1 through December 31, 2023. The scope of sampling and analysis conducted are presented below. Details of the sampling methods and flow measurement methods can be found in *Cape Fear River Mass Loading Calculation Protocol Version 2* (Geosyntec 2020a). Details of the sampling scope for the mass loading model are in Appendix A.

### 2.1 Sampling Activities

In Q4 2023, composite samples were collected from Tar Heel (sample location CFR-TARHEEL), which is approximately 7 miles downstream of the Site (Figure 2). In addition, grab samples were collected at the three downstream locations along the Cape Fear River (Bladen Bluffs, Tar Heel, and Kings Bluff). The flow measurements were collected at W.O. Huske Dam (Station #2105500) and Cape Fear Lock and Dam #1 (Station #2105769) and are summarized in Appendix B. Field forms are provided in Appendix C.

The composite samples were collected using an autosampler and were generally composited over 24 hours with aliquots collected at 1-hour intervals and at two samples per week. A total of 26 primary composite samples and 3 field duplicate composite samples were collected from this location from October 2, through December 27, 2023. The duplicate samples were collected on October 10, November 13, and December 12, 2023. The sampling program was interrupted on December 18 to 19, 2023, due to high water river stage that was predicted to flood the autosampler platform (i.e., the river gage height at W.O. Huske Dam was predicted to exceed 10 feet on December 19, 2023). As a result, the sampler was temporarily removed and 2 grab samples were collected to continue a record of river concentrations over time. The field parameters and associated flow measurements are provided in Table 2.

Grab samples were collected using a peristaltic pump and new dedicated high-density polyethylene (HDPE) or low-density polyethylene (LDPE) tubing and dedicated silicone tubing for the pump head. A total of three grab samples were collected: one from Tar Heel (sample location CFR-TARHEEL) and one from Bladen Bluffs (sample location CFR-BLADEN) on December 6, 2023, and one from Kings Bluff (sample location CFR-KINGS) on December 14, 2023 (Table 2). The grab sample from Kings Bluff was collected eight days after sampling conducted at Tar Heel and Bladen Bluffs to account for the estimated travel time between these locations.

For the remedies installed at Outfall 003 stream; Seeps A, B, C, and D; and Outfall 002, samples and flow measurements were collected at the influent and effluent stilling basins and at the Outfall 003 treatment system. The sampling methods for the Seeps are not part of the scope of the mass loading assessment but are provided in *CFR Long-Term Remedy Performance Monitoring Report #4* (Geosyntec 2024).

## 2.2 Laboratory Analyses

Samples were sent to Eurofins Scientific (West Sacramento, California). The twice weekly samples from Tar Heel were analyzed for PFAS by Table 3+ using Method 537 Mod Max (22 compounds which includes PFHpA and PFPrA)<sup>6</sup>. The grab samples from Bladen Bluffs, Tar Heel, and Kings Bluff were analyzed for Table 3+ and other PFAS compounds using Method 537 Mod Max (56 compounds which includes PFPrA).

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<sup>6</sup> During Q4 2023, PFPrA was analyzed in all the twice weekly Tar Heel samples except for CFR-TARHEEL-24-100223 (Tar Heel sample collected on October 2, 2023).

### 3 PFAS ANALYTICAL RESULTS

Table 3+ analytical results from samples collected at Bladen Bluffs, Tar Heel, and Kings Bluff in Q4 2023 are presented in Tables 3 and 4. During this quarter, all samples were within the acceptable temperature requirements for preservation during storage and shipping (i.e., between not frozen to 6°C with a target of 4°C) as outlined in the Chemours PFAS Program QAPP (AECOM, 2018). The analytical results for the Seeps influent and effluent (to estimate remedies) are provided in *CFR Long-Term Remedy Performance Monitoring Report #3* (Geosyntec 2024). The laboratory reports and Data Verification Module (DVM) reports are provided in Appendix D. The analytical data have been reviewed and validated. The duplicate samples have also been compared to the primary samples.

#### 3.1 Data Validation

The laboratory data were reviewed using the DVM within the Locus™ Environmental Information Management (EIM) system, a commercial software program used to manage data. Following the DVM process, a secondary review of the data was conducted. The DVM and secondary review results were combined in a data review narrative report for each set of sample results, which were consistent with Stage 2b of the United States Environmental Protection Agency (USEPA) *Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use* (USEPA 2009).

Additional details of the data validation are provided in Appendix A. Based on the review, the data are complete, representative, and comparable, with the exception of R-PSDA, Hydrolyzed PSDA, and R-EVE<sup>7</sup>.

#### 3.2 Equipment Blanks, Quality Assurance/Quality Control, and Duplicate Samples

No equipment blank samples were collected for the Tar Heel sampling program (CFR-TARHEEL) during this period because there were no maintenance activities conducted on the composite samplers. There were no other quality assurance/quality control samples collected for this reporting period. PFAS results for the primary and duplicate samples had relative percent differences less than 30% for the reported compounds.

#### 3.3 Analytical Results

The Q4 2023 analytical results from the samples collected at Tar Heel are presented in Table 3. The Total Table 3+ (17 compounds) concentrations in Q4 2023 ranged from 6.5 nanograms per

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<sup>7</sup> As reported in the *Matrix Interference During Analysis of Table 3+ Compounds* memorandum (Geosyntec, 2020b), matrix interference studies conducted by the analytical laboratory (TestAmerica, Sacramento) have shown that the quantitation of three compounds (R-PSDA, Hydrolyzed PSDA, and R-EVE) is inaccurate due to interferences by the sample matrix in both groundwater and surface water.

liter (ng/L) to 99 ng/L. This range in concentrations is within the observed range in previous quarterly sampling events that occurred after the remedies were in operation (Geosyntec: 2020c; 2020d; 2020e; 2021b; 2021c; 2021d; 2021e; 2022a; 2022b; 2022c; 2022d; 2022e; 2023a; 2023b; 2023c; 2023d).

The Q4 2023 Table 3+ analytical results from the grab samples collected at Bladen Bluffs, Tar Heel, and Kings Bluff are presented in Table 4 and the other PFAS analytical results are presented in Appendix B. The analytical results for these downstream locations are discussed in Section 4.3.

## 4 CAPE FEAR RIVER MASS LOAD AND MASS DISCHARGE CALCULATIONS

The analytical results from the sampling and the flows reported from W.O. Huske Dam (Station #2105500) and Cape Fear Lock and Dam #1 (Station #2105769) (Appendix B) were used to estimate the Total Table 3+ (17 compounds) mass loads and mass discharge in the Cape Fear River. Specifically, the mass load is calculated as the product of the concentration of PFAS and the total volume of water (million gallons [MG]) that flowed past the sampling point within the sampling time interval (pounds [lbs]); and the mass discharge is generally calculated as the product of the concentration of PFAS and the volumetric flow rate (milligrams per second [mg/s]).

### 4.1 PFAS Mass Load in the Cape Fear River and Comparison to Baseline Mass Load

In Q4 2023, the in-river Total Table 3+ (17 compounds) mass load measured at Tar Heel was 28 lbs and is based on the 58 mass loading estimation intervals (Table 5). The rolling sums of Total Table 3+ (17 compounds) mass load at Tar Heel over the last four reporting quarters were calculated, starting from Q1 2022 through this quarterly report (Table 6). These quarterly loads are summed with the loads from the preceding three quarters to calculate a rolling four-quarter Total PFAS mass load at the Cape Fear River. A total rolling four-quarter mass load captures the dynamics and inherent variability between in-river PFAS concentrations, river flows, and weather conditions (i.e., rainfall), which is well represented within a four-quarter timeframe. This rolling four-quarter total (i.e. total from a set of four consecutive quarters) allows for a quarterly cadence of evaluating Total PFAS mass load reductions from baseline, rather than an annual cadence.

The percent reduction from the total four-quarter PFAS baseline mass load (947 lbs; Geosyntec, 2023d) are summarized below:

- For the rolling four-quarter total load ending in Q4 2023, the total in-river load was 130 lbs, which is an 86% reduction compared to the baseline load of 947 lbs.
- During the past seven consecutive report quarters, there has been a four-quarter rolling total reduction of 75% or greater from the total baseline mass load of 947 lbs, which is inclusive of nine total quarters.



Rolling Four-Quarter Period	Sum of Total Table 3+ (17 Compounds) Rolling Four-Quarters River Mass Load (lbs)	Percent Reduction from Baseline
Q2 2020 to Q1 2021 (Baseline)	947	--
Q2 2021 to Q1 2022	373	61%
Q3 2021 to Q2 2022	237	75%
Q4 2021 to Q3 2022	171	82%
Q1 2022 to Q4 2022	167	82%
Q2 2022 to Q1 2023	146	85%
Q3 2022 to Q2 2023	137	85%
Q4 2022 to Q3 2023	139	85%
Q1 2023 to Q4 2023	130	86%

PFAS mass loads to the Cape Fear River have been reduced since the baseline period because of the multiple remedies that Chemours have implemented at the Site. This quarter, PFAS mass load prevented from discharging to the Cape Fear River was estimated using analytical results measured from samples collected at the influent and effluent of the remedies and their respective flows. Due to the implementation of the groundwater extraction and barrier wall remedy, the flows at the Seep FTCs are much lower than quarters prior to the operation of the groundwater extraction system, and at times no flow was observed at the FTCs. As a result, the total PFAS mass load captured by the Seep FTCs are less than previous quarters prior to the operation of the groundwater extraction system. During the Q4 2023 reporting period, the remedies at Outfall 003, the Seeps, the 004 GWTP, and the SWTS prevented the following Total Table 3+ PFAS mass loads:

- For the seeps FTCs, a total of 1.46 lbs was captured and prevented from reaching the Cape Fear River with a total measured flow of 4.9 MG (Geosyntec, 2024). These reductions are further discussed in the *CFR Long-Term Remedy Performance Monitoring Report #4* (Geosyntec 2024).
- The 004 Groundwater Treatment Plant (GWTP) captured 45.6 MG of water and removed a mass load of 50.4 lbs. This estimate was based on the mass loading estimates of flow rate data and PFAS concentration data collected between October through December 2023 (Geosyntec, 2024). These reductions are further discussed in the *CFR Long-Term Remedy Performance Monitoring Report #4* (Geosyntec, 2024).
- For the Outfall 003 treatment system, a total of 9.6 lbs of PFAS was captured and prevented from reaching the Cape Fear River with a total treated flow of 34.5 MG (Appendix B).
- The SWTS captures PFAS originating from stormwater in the Monomers/IXM area that would otherwise flow to Outfall 002 during storm events. When stormwater is being treated at the SWTS, HFPO-DA, PFMOAA, and PMPA concentrations are measured in the SWTS influent and effluent flows. The captured total mass of HFPO-DA, PFMOAA, and PMPA during storm events between October 13 to December 22, 2023, was 0.77 lbs.

This estimate was based on mass loading estimates for 19 days when flow was recorded at the SWTS in Q4 2023, with a total treated flow of about 1.9 MG (Appendix B). This captured total mass likely underestimates the mass of PFAS captured by the SWTS during Q4 2023 because the samples collected are analyzed for the three indicator compounds (HFPO-DA, PFMOAA, and PMPA) and not the full Table 3+ analyte list.

Remedy	Report Period (Oct – Dec 2023)		Reference
	Flow Captured/ Treated (MG)	Mass Removed (lbs)	
Interim Seeps FTCs	4.9	1.46	<i>CFR Long-Term Remedy Performance Monitoring Report #4 (Geosyntec, 2024)</i>
004 GWTP	45.6	50.4	<i>CFR Long-Term Remedy Performance Monitoring Report #4 (Geosyntec, 2024)</i>
Outfall 003 Treatment Plant	34.5	9.6	<i>Appendix B</i>
SWTS	1.9	0.77	<i>Appendix B</i>

## 4.2 PFAS Mass Discharge to the Cape Fear River

Mass discharge was calculated from 32 samples collected at Tar Heel and recorded flows at W.O. Huske Dam during Q4 2023. The Total Table 3+ (17 compounds) mass discharge among samples with detected Total Table 3+ (17 compounds) concentrations ranged from 0 to 9.8 mg/s (Table 7), with the median mass discharge being 1.1 mg/s. The flow measured in Cape Fear River, the Total Table 3+ concentrations, and mass discharge over time have been plotted from the start of the mass loading program (from March 28, 2020, to December 31, 2023; Figure 6) and within the last 12 months (from January 1, 2023, to December 31, 2023; Figure 7).

During this quarter (Q4 2023), the Total Table 3+ (17 compounds) concentrations in the Cape Fear River were within range of the previous 12 months, with higher concentrations during the months of October and November. These two months corresponded to an extended period of low river flows and is a trend that has been observed in the past. However, the mass discharge values calculated during these two months remained stable and at low levels typical of the past 12 months, as shown in Figure 7. In December, the concentrations decreased during periods of high river flow conditions.

The highest estimated mass discharge value of 9.8 mg/s (December 18, 2023, sample) corresponded to a grab sample with a Table 3+ PFAS (17 compounds) concentration of 44 ng/L, which was within the range of other river concentrations in the quarter. This mass discharge estimate occurred within approximately 12 hours of the end of a precipitation event of 3.38 inches. On the following day, December 19, 2023, another grab sample collected at Tar Heel was non-

detect for Table 3+ PFAS (17 compounds) and had a corresponding mass load of 0 mg/s. While the concentration of the December 18, 2023, sample was well within the range of quarterly concentrations, the mass discharge was elevated since the river flow was increasing quickly (estimated to be 7,860 cfs) from the rainfall event.

The mass discharge values this quarter continued to remain lower than the mass discharges before Q3 2021, which corresponds to the time when the Outfall 003 treatment system, the Seep FTCs, and the SWTP were installed and operating. While this suggests additional mass removal from the installation of the groundwater extraction and barrier wall remedy implemented this year, additional sampling events are required to continue evaluating and quantifying the reduction from the groundwater extraction and barrier wall remedy.

### 4.3 PFAS Mass Discharge at the Downstream River Locations

The Total Table 3+ (17 compounds) concentrations and mass discharge values from the Q4 2023 event are shown in the table below. Total Table 3+ (17 compounds) concentrations at the three downstream river locations ranged from 44 nanograms per liter (ng/L) (CFR-KINGS) to 52 ng/L (CFR-BLADEN). The Tar Heel and Bladen Bluffs sampling locations are located within 2 miles of each other and have similar sample results. The Kings Bluff location is located further away (i.e., 48 miles from Tar Heel) but also had similar results to the other two locations.

As per the *Cape Fear River Mass Loading Calculation Protocol Version 2* (Geosyntec, 2020a), CFR-KINGS was sampled eight days after CFR-TARHEEL and CFR-BLADEN to account for travel time between these two locations and CFR-KINGS. Flows reported at W.O. Huske Dam (Station #2105500) are adjusted for travel time and used in the calculation of mass discharge for Bladen Bluffs and Tar Heel. Flows reported at Cape Fear Lock and Dam #1 (Station #2105769) are used in the calculation of mass discharge for Kings Bluff. A total of 0.4 inches of rainfall was recorded during the estimated travel period (December 6 to December 14, 2023) which resulted in a higher flow rate at Kings Bluff. Chemours reviews and monitors the weather data and river data available to attempt to avoid sampling during rain events as best as possible, however, the travel time of several days (e.g., eight days) makes it difficult to predict rainfall in between the travel time period.

The Total Table 3+ (17 compounds) mass discharge ranged from 1.1 mg/s (CFR-TARHEEL [grab]) to 4.9 mg/s (CFR-KINGS). The mass discharge across the three downstream river locations in Q4 2023 was within the range of previous quarters (Geosyntec: 2020c; 2020d; 2020e; 2021b; 2021c; 2021d; 2021e; 2022a; 2022b; 2022c; 2022d; 2022e; 2023a; 2023b; 2023c; 2023d). Specifically, the mass discharges from Q4 2021 to Q3 2023 were 0.43 to 3.0 mg/s at CFR-BLADEN, non-detect to 3.0 mg/s at CFR-TARHEEL (grab samples), and 0.36 to 4.9 mg/s at CFR-KINGS (Geosyntec: 2022a, 2022b, 2022c, 2022d, 2023a, 2023b, 2023c, 2023d). There is inherent variability associated with river sample collection due to changing flow rates, precipitation near the Site and along the river, sample collection location which can lead to variability in the PFAS mass discharge at these three locations. However, the mass discharges at the downstream river

locations remain consistently lower since Q4 2021 than in previous assessments, which reflects the reduced mass discharge from the Site due to implemented remedies described in Section 4.2.

Sample Location	Sample Collection Method	Sample Collection Date	Flow Rate (cfs)	Total Table 3+ (17 Compounds)	
				Concentration (ng/L)	Mass Discharge (mg/s)
CFR-BLADEN	Grab	12/06/2023	793	52	1.2
CFR-TARHEEL	Grab	12/06/2023	793	48	1.1
CFR-KINGS	Grab	12/14/2023	3,960	44	4.9

#### 4.4 Calculated Mass Discharge from the Mass Loading Model Assessment

This section presents the estimation of mass discharge from the identified PFAS transport pathways using the mass loading model and an assessment of the contributions by pathway. The results of the mass loading model assessment for Q4 2023 are briefly described below. Details on the mass loading model results and calculations are provided in Appendix A.

The table below summarizes the Total Table 3+ (17 compounds) mass discharge prior to the remedies (i.e., before the water passes through the remedies) by pathway from Q2 2020 to Q4 2022. The pathways with remedies (Seeps, Outfall 003 stream, Outfall 002, and onsite groundwater) have substantially lower mass discharges than the before remedies mass discharges.

Model Transport Pathway with Remedies	Before Remedies Total Table 3+ (17 Compounds) Mass Discharge (mg/s) <sup>1</sup>			Q4 2023 Total Table 3+ (17 Compounds) Mass Discharge (mg/s)
	Min	Median	Max	
Seeps	3.0	5.4	8.4	0.017
Onsite Groundwater	1.5	3.6	9.6	0.05
Outfall 002	0.006	0.10	0.68	0.06
Outfall 003 stream	0.63	2.5	4.7	0.10
<b>Total Across Nine Transport Pathways<sup>2</sup></b>	<b>6.7</b>	<b>14</b>	<b>24</b>	<b>1.26</b>

1 – Before remedies mass discharge values taken from mass loading model data sets from Q2 2020 to Q4 2022 which excludes measurements after the installation of the groundwater extraction and barrier wall remedy which significantly altered the hydrologic conditions at site.

2 – Total values for before remedies mass discharge come from individual mass loading model assessments and therefore do not equal the sum of the values above.

## 5 SUMMARY AND CONCLUSIONS

This Q4 2023 Cape Fear River PFAS assessment at Tar Heel estimated the Total Table 3+ (17 compounds) that was measured at the Cape Fear River over the load assessment period of October 1, 2023, through December 31, 2023. Over this period, the in-river Total Table 3+ (17 compounds) mass load measured at Tar Heel was 28 lbs, and the Total Table 3+ (17 compounds) mass discharge values ranged from 0 to 9.8 mg/s (median: 1.1 mg/s). A rolling four-quarter Total PFAS mass load was calculated to assess reduction from the four-quarter baseline PFAS mass load of 947 lbs (Geosyntec, 2023d). A rolling four-quarter total reduction of 75% or greater from the baseline mass load was achieved during the past seven consecutive reporting quarters, which is inclusive of nine total quarters, including this quarter. PFAS mass loads to the Cape Fear River have been reduced since the baseline period because of the multiple remedies that Chemours have implemented at the Site, including the Seeps FTCs (1.46 lbs), 004 GWTP (50.4 lbs), Outfall 003 (9.6 lbs), and SWTS (0.77 lbs). Assessment of PFAS mass loads at Tar Heel and reductions from the remedies will continue in future reporting quarters.

The PFAS mass discharge sampling at Bladen Bluffs, Tar Heel, and Kings Bluff consisted of three grab samples collected at the three downstream locations along Cape Fear River. Overall, the mass discharges measured at the downstream river locations were relatively consistent in Q4 2023 and have been consistently lower since Q4 2021, which may in part reflect the reduced mass discharge from the Site due to implemented remedies.

In November 2023, samples were collected from the PFAS transport pathways during a wet weather event and were used to estimate the mass discharge and the contribution per transport pathway to the Cape Fear River. The model-estimated Total Table 3+ (17 compounds) mass discharge from the potential transport pathways during Q4 2023 is 1.26 mg/s. The implementation of remedies (Outfall 003 treatment system, Seeps FTCs, and the groundwater extraction and barrier wall remedy) show a significant mass discharge decreases in Q4 2023 compared to historical, pre-remediation ranges. The pathways with remedies have substantially lower mass discharges than the before remedies mass discharges, and the remaining PFAS transport pathways (i.e., Willis Creek and Georgia Branch Creek) have mass discharges that are within the range of previous values.

Quarterly sample collection was initiated in January 2022 and will continue for a period of 4 years (through Q4 2025). Assessment of PFAS mass loads will continue in future sampling events, including evaluation of reductions in mass loads from the model pathways due to the implemented remedies and calculations of measured mass loads at Tar Heel.

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# Tables



**TABLE 1**  
**PFAS ANALYTE LIST**  
**Chemours Fayetteville Works, North Carolina**

Common Name	PFAS Grouping <sup>1</sup>				Chemical Name	CASRN	Chemical Formula
	Attachment C	Table 3+ (17 compounds)	Table 3+ (18 compounds)	Table 3+ (21 compounds)			
HFPO-DA	✓	✓	✓	✓	Hexafluoropropylene oxide dimer acid	13252-13-6	C6HF11O3
PEPA	✓	✓	✓	✓	Perfluoro-2-ethoxypropionic acid	267239-61-2	C5HF9O3
PFECA-G	✓	✓	✓	✓	Perfluoro-4-isopropoxybutanoic acid	801212-59-9	C12H9F9O3S
PFMOAA	✓	✓	✓	✓	Perfluoro-2-methoxyacetic acid	674-13-5	C3HF5O3
PFO2HxA	✓	✓	✓	✓	Perfluoro-3,5-dioxahexanoic acid	39492-88-1	C4HF7O4
PFO3OA	✓	✓	✓	✓	Perfluoro-3,5,7-trioxaoctanoic acid	39492-89-2	C5HF9O5
PFO4DA	✓	✓	✓	✓	Perfluoro-3,5,7,9-tetraoxadecanoic acid	39492-90-5	C6HF11O6
PMPA	✓	✓	✓	✓	Perfluoro-2-methoxypropionic acid	13140-29-9	C4HF7O3
Hydro-EVE Acid	--	✓	✓	✓	2,2,3,3-tetrafluoro-3-((1,1,1,2,2,3,3-hexafluoro-3-[(1,2,2,2-tetrafluoroethyl)oxy]propan-2-yl)oxy)propionic acid	773804-62-9	C8H2F14O4
EVE Acid	--	✓	✓	✓	2,2,3,3-tetrafluoro-3-((1,1,1,2,2,3,3-hexafluoro-3-[(1,2,2-trifluoroethenyl)oxy]propan-2-yl)oxy)propionic acid	69087-46-3	C8HF13O4
PFECA B	--	✓	✓	✓	Perfluoro-3,6-dioxahexanoic acid	151772-58-6	C5HF9O4
R-EVE	--	--	--	✓	Pentanoic acid, 4-(2-carboxy-1,1,2,2-tetrafluoroethoxy)-2,2,3,3,4,5,5,5-octafluoro-	2416366-22-6	C8H2F12O5
PFO5DA	✓	✓	✓	✓	Perfluoro-3,5,7,9,11-pentaaxadecanoic acid	39492-91-6	C7HF13O7
R-PSDA	--	--	--	✓	Pentanoic acid, 2,2,3,3,4,5,5,5-octafluoro-4-(1,1,2,2-tetrafluoro-2-sulfoethoxy)-	2416366-18-0	C7H2F12O6S
R-PSDCA	--	✓	✓	✓	Ethanesulfonic acid, 1,1,2,2-tetrafluoro-2-[1,2,2,3,3-pentafluoro-1-(trifluoromethyl)propoxy]-	2416366-21-5	C6H2F12O4S
Hydrolyzed PSDA	--	--	--	✓	Acetic acid, 2-fluoro-2-[1,1,2,2,3,3,3-hexafluoro-2-(1,1,2,2-tetrafluoro-2-sulfoethoxy)propoxy]-	2416366-19-1	C7H3F11O7S
NVHOS	--	✓	✓	✓	1,1,2,2,4,5,5,5-heptafluoro-3-oxapentanesulfonic acid; or 2-(1,2,2,2-ethoxy)tetrafluoroethanesulfonic acid; or 1-(1,1,2,2-tetrafluoro-2-sulfoethoxy)-1,2,2,2-tetrafluoroethane	801209-99-4	C4H2F8O4S
PES	--	✓	✓	✓	Perfluoro-2-ethoxyethanesulfonic acid	113507-82-7	C4HF9O4S
PS Acid	✓	✓	✓	✓	Ethanesulfonic acid, 2-[1-[difluoro(1,2,2-trifluoroethenyl)oxy]methyl]-1,2,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-	29311-67-9	C7HF13O5S
Hydro-PS Acid	✓	✓	✓	✓	Ethanesulfonic acid, 2-[1-[difluoro(1,2,2,2-tetrafluoroethoxy)methyl]-1,2,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-	749836-20-2	C7H2F14O5S
PFPrA	--	--	✓	✓	Perfluoropropanoic acid	422-64-0	C3HF5O2
PFHpA	✓	--	--	--	Perfluoroheptanoic acid	375-85-9	C7HF13O2
PFBA	--	--	--	--	Perfluorobutanoic acid	375-22-4	C4HF7O2
PFPeA	--	--	--	--	Perfluoropentanoic acid	2706-90-3	C5HF9O2
PFHxA	--	--	--	--	Perfluorohexanoic acid	307-24-4	C6HF11O2
PFOA	--	--	--	--	Perfluorooctanoic acid	335-67-1	C8HF15O2
PFNA	--	--	--	--	Perfluorononanoic acid	375-95-1	C9HF17O2
PFDA	--	--	--	--	Perfluorodecanoic acid	335-76-2	C10HF19O2
PFUnA	--	--	--	--	Perfluoroundecanoic acid	2058-94-8	C11HF21O2
PFDoA	--	--	--	--	Perfluorododecanoic acid	307-55-1	C12HF23O2
PFTriA	--	--	--	--	Perfluorotridecanoic acid	72629-94-8	C13HF25O2
PFTeA	--	--	--	--	Perfluorotetradecanoic acid	376-06-7	C14HF27O2
PFHxDA	--	--	--	--	Perfluorohexadecanoic acid	67905-19-5	C16HF31O2
PFODA	--	--	--	--	Perfluorooctadecanoic acid	16517-11-6	C18HF35O2
PFBS	--	--	--	--	Perfluorobutanesulfonic acid	375-73-5	C4HF9SO
PFPeS	--	--	--	--	Perfluoropentanesulfonic acid	2706-91-4	C5HF11O3S
PFHxS	--	--	--	--	Perfluorohexanesulfonic acid	355-46-4	C6HF13SO3
PFHpS	--	--	--	--	Perfluoroheptanesulfonic acid	375-92-8	C7HF15O3S
PFOS	--	--	--	--	Perfluorooctanesulfonic acid	1763-23-1	C8HF17SO3
PFNS	--	--	--	--	Perfluorononanesulfonic acid	68259-12-1	C9HF19O3S
PFDS	--	--	--	--	Perfluorodecanesulfonic acid	335-77-3	C10HF21O3S
PFDoDS	--	--	--	--	Perfluorododecanesulfonic acid	79780-39-5	C12HF25O3S
4:2 FTS	--	--	--	--	4:2 Fluorotelomer sulfonic acid	757124-72-4	C6H5F9O3S
6:2 FTS	--	--	--	--	6:2 Fluorotelomer sulfonic acid	27619-97-2	C8H5F13SO3
8:2 FTS	--	--	--	--	8:2 Fluorotelomer sulfonic acid	39108-34-4	C10H5F17O3S
10:2 FTS	--	--	--	--	10:2 Fluorotelomer sulfonic acid	120226-60-0	C12H5F21O3
NEtFOSAA	--	--	--	--	N-ethyl perfluorooctane sulfonamidoacetic acid	2991-50-6	C12H8F17NO4S
NEtPFOSA	--	--	--	--	N-ethylperfluoro-1-octanesulfonamide	4151-50-2	C10H6F17NO2S
NEtPFOSAE	--	--	--	--	N-ethyl perfluorooctane sulphonamidoethanol	1691-99-2	C12H10F17NO3S
NMeFOSAA	--	--	--	--	N-methyl perfluorooctane sulfonamidoacetic acid	2355-31-9	C11H6F17NO4S
NMePFOSA	--	--	--	--	N-methyl perfluoro-1-octanesulfonamide	31506-32-8	C9H4F17NO2S
NMePFOSAE	--	--	--	--	N-methyl perfluorooctane sulfonamidoethanol	24448-09-7	C11H8F17NO3S
PFOSA	--	--	--	--	Perfluorooctane sulfonamide	754-91-6	C8H2F17NO2S
F-53B Major	--	--	--	--	Perfluoro(2-((6-chlorohexyl)oxy)ethanesulfonic acid)	756426-58-1	C8HClF16O4S
F-53B Minor	--	--	--	--	Perfluoro(2-((8-chlorooctyl)oxy)ethanesulfonic acid)	763051-92-9	C10HClF20O4S
DONA	--	--	--	--	2,2,3-Trifluoro-3-(1,1,2,2,3,3-hexafluoro-3-(trifluoromethoxy)propoxy)propanoic acid	919005-14-4	C7H2F12O4

## Notes:

-- not included in the PFAS grouping  
PFAS - Per- and Polyfluoroalkyl substances

1 - As reported in the Matrix Interference During Analysis of Table 3+ Compounds memorandum (Geosyntec, 2020a), matrix interference studies conducted by the analytical laboratory (TestAmerica, Sacramento) have shown that the quantitation of three compounds (R-PSDA, Hydrolyzed PSDA, and R-EVE) is inaccurate due to interferences by the sample matrix in both groundwater and surface water. Given the matrix interference issues, Total Table 3+ PFAS concentrations have been calculated and presented as: (i) the summation of 17 of the Table 3+ compounds "Total Table 3+ (17 compounds)", i.e., does not include PFHpA, R-PSDA, Hydrolyzed PSDA, R-EVE, and PFPrA; (ii) the summation of 18 of the Table 3+ compounds "Total Table 3+ (18 compounds) does not include PFHpA, R-PSDA, Hydrolyzed PSDA, and R-EVE"; and (iii) the summation of 21 of the Table 3+ compounds "Total Table 3+ (21 compounds)".

TABLE 2  
RIVER SAMPLES AT TAR HEEL AND DOWNSTREAM LOCATIONS - Q4 2023  
Chemours Fayetteville Works, North Carolina

Location ID	Sample ID	QA/QC	Date and Time	Sample Collection								Flow Measurement		
				Method	Hours Compositd	pH (S.U.)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Specific Conductivity (µS/cm)	Temperature (°C)	Method	Total Volume (MG) <sup>2</sup>	Instantaneous Flow Rate (ft <sup>3</sup> /s) <sup>3</sup>
CFR-TARHEEL <sup>4</sup>	CFR-TARHEEL-24-100223		10/2/23 23:01	Composite	24	7.60	7.6	99.8	7.98	219.9	28.4	USGS Data <sup>7</sup>	557	--
	CFR-TARHEEL-24-100523		10/5/23 23:01	Composite	24	7.53	7.9	45.5	38.9	264.8	24.2	USGS Data <sup>7</sup>	442	--
	CFR-TARHEEL-24-101023		10/10/23 23:01	Composite	24	7.89	8.04	16.2	15.5	250.2	18.8	USGS Data <sup>7</sup>	484	--
	CFR-TARHEEL-24-101023-D	Field Duplicate	10/10/23 23:01	Composite	24	7.89	8.04	16.2	15.5	250.2	18.8	USGS Data <sup>7</sup>	484	--
	CFR-TARHEEL-24-101223		10/12/23 23:01	Composite	24	7.73	7.3	73.8	25.1	358.3	18.7	USGS Data <sup>7</sup>	356	--
	CFR-TARHEEL-24-101723		10/17/23 23:01	Composite	24	7.76	7.88	30	6.86	381.2	17.6	USGS Data <sup>7</sup>	565	--
	CFR-TARHEEL-24-101923		10/19/23 23:01	Composite	24	7.61	8.43	36.5	7.46	295.7	17.3	USGS Data <sup>7</sup>	511	--
	CFR-TARHEEL-24-102323		10/23/23 23:01	Composite	24	7.12	8.29	101.4	84.35	357.9	22.1	USGS Data <sup>7</sup>	577	--
	CFR-TARHEEL-24-102623		10/26/23 23:01	Composite	24	8.09	8.47	-8.6	8.61	240.4	17.7	USGS Data <sup>7</sup>	503	--
	CFR-TARHEEL-24-103023		10/30/23 23:01	Composite	24	8.05	7.99	1.7	8.5	328.6	18.1	USGS Data <sup>7</sup>	450	--
	CFR-TARHEEL-24-110223		11/2/23 23:01	Composite	24	8.04	10.44	41.2	5.94	359.8	8.6	USGS Data <sup>7</sup>	406	--
	CFR-TARHEEL-24-110623		11/6/23 23:01	Composite	24	7.79	0	49.6	6.28	729.7	20.3	USGS Data <sup>7</sup>	370	--
	CFR-TARHEEL-24-110923		11/9/23 23:01	Composite	24	7.79	8.61	2.2	3.96	362.0	17.4	USGS Data <sup>7</sup>	372	--
	CFR-TARHEEL-24-111323		11/13/23 23:01	Composite	24	7.79	8.61	2.2	3.96	362.0	17.4	USGS Data <sup>7</sup>	425	--
	CFR-TARHEEL-24-111323-D	Field Duplicate	11/13/23 23:01	Composite	24	7.79	8.61	2.2	3.96	362.0	17.4	USGS Data <sup>7</sup>	425	--
	CFR-TARHEEL-24-111623		11/16/23 23:01	Composite	24	7.88	7.89	-14.3	4.59	420.6	21.4	USGS Data <sup>7</sup>	396	--
	CFR-TARHEEL-24-112023		11/20/23 23:01	Composite	24	7.84	8.53	-201	7.03	990.4	19.0	USGS Data <sup>7</sup>	368	--
	CFR-TARHEEL-24-112123		11/21/23 23:01	Composite	24	7.53	9.63	96.7	20.45	347.5	17.6	USGS Data <sup>7</sup>	312	--
	CAP4Q23-CFR-TARHEEL-24-112423		11/24/23 4:36	Composite	24	5.09	9.45	122.4	41.75	92.2	16.4	USGS Data <sup>7</sup>	1,780	--
	CFR-TARHEEL-24-112723		11/27/23 23:01	Composite	24	8.17	9.44	-13.1	7.08	365.6	9.7	USGS Data <sup>7</sup>	832	--
	CFR-TARHEEL-24-113023		11/30/23 23:01	Composite	24	7.74	8.71	26.8	6.5	195.3	15.6	USGS Data <sup>7</sup>	517	--
	CFR-TARHEEL-24-120423		12/4/23 23:01	Composite	24	7.55	8.16	54.9	6.15	228.4	16.0	USGS Data <sup>7</sup>	518	--
	CAP4Q23-CFR-TARHEEL-120623		12/6/23 16:38	Grab	0	6.42	10.79	180.9	8.51	209.1	12.9	USGS Data <sup>8</sup>	--	793
	CFR-TARHEEL-24-120723		12/7/23 23:01	Composite	24	6.9	9.58	80.2	5.79	218.7	11.0	USGS Data <sup>7</sup>	497	--
	CFR-TARHEEL-24-121123		12/11/23 23:01	Composite	24	7.69	9.74	44.8	8.56	204.5	11.3	USGS Data <sup>7</sup>	589	--
	CFR-TARHEEL-24-121223		12/12/23 23:01	Composite	24	7.32	9.66	53.8	33	197.7	10.9	USGS Data <sup>7</sup>	1,504	--
	CFR-TARHEEL-24-121223-D	Field Duplicate	12/12/23 23:01	Composite	24	7.32	9.66	53.8	33	197.7	10.9	USGS Data <sup>7</sup>	1,504	--
	CFR-TARHEEL-24-121423		12/14/23 23:01	Composite	24	7.32	9.66	53.8	20.3	197.7	10.9	USGS Data <sup>7</sup>	958	--
	CFR-TARHEEL-121823		12/18/23 10:17	Grab	0	7.59	9.06	104.9	184	162.9	15.1	USGS Data <sup>8</sup>	--	7,860
	CFR-TARHEEL-121923		12/19/23 9:50	Grab	0	7.25	9.43	44.3	154	113.6	10.3	USGS Data <sup>8</sup>	--	18,800
CFR-TARHEEL-24-122523		12/25/23 23:01	Composite	24	7.37	8.26	39.1	46.5	153.3	16.3	USGS Data <sup>7</sup>	2,584	--	
CFR-TARHEEL-24-122723		12/27/23 23:01	Composite	24	7.79	9.14	39	105	102.9	12.9	USGS Data <sup>7</sup>	3,354	--	
CFR-BLADEN <sup>5</sup>	CAP4Q23-CFR-BLADEN-120623		12/6/23 11:25	Grab	0	6.54	11.29	180.60	4.93	156.76	11.86	USGS Data <sup>9</sup>	--	793
CFR-KINGS <sup>6</sup>	CAP4Q23-CFR-KINGS-121423		12/14/23 12:15	Grab	0	7.27	9.46	43.10	7.96	204.66	11.84	USGS Data <sup>10</sup>	--	3,960

- Notes**  
 -- not applicable  
 °C - degrees Celsius  
 ft<sup>3</sup> - cubic feet  
 ft<sup>3</sup>/s - cubic feet per second  
 mg/L - milligrams per liter  
 mV - millivolts  
 NM - not measured; field parameters were not collected.  
 NTU - nephelometric Turbidity Unit  
 ORP - oxidation reduction potential  
 QA/QC - Quality assurance/ quality control  
 S.U. - Standard Units  
 USGS - United States Geological Survey  
 µS/cm - microsiemens per centimeter  
 1 - Samples with a compositing duration of zero (0) hours are grab samples.  
 2 - Total flow volume is determined based on measurements taken over the sample collection period.  
 3 - For samples with a duration of zero (0) hours, i.e., grab samples, the instantaneous flow rate was used.  
 4 - The sample location is along the Cape Fear River at Tar Heel Ferry Road Bridge.  
 5 - The sample location is along the Cape Fear River at Bladen Bluffs.  
 6 - The sample location is along the Cape Fear River at Kings Bluff.  
 7 - Flow rate measured at USGS gauging station #02105500 located at William O Huske Lock & Dam used to estimate flow rate at Tar Heel Ferry Road Bridge during the 24 hr period between the collection of the composite sample.  
 8 - Flow rate measured at USGS gauging station #02105500 located at William O Huske Lock & Dam used to estimate flow rate at Tar Heel Ferry Road Bridge during grab sample collection.  
 9 - Flow rate measured at USGS gauging station #02105500 located at William O Huske Lock & Dam used to estimate flow rate at Bladen Bluffs during sample collection.  
 10 - Flow rate measured at USGS gauging station #02105769 located at Lock #1 near Kelly used to estimate flow rate at Kings Bluff during sample collection.

**TABLE 3**  
**CAPE FEAR RIVER TAR HEEL ANALYTICAL RESULTS - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Sampling Event	Q4 2023	Q4 2023	Q4 2023	Q4 2023
Location ID	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CFR-TARHEEL-24-100223	CFR-TARHEEL-24-100523	CFR-TARHEEL-24-101023	CFR-TARHEEL-24-101023-D
Sample Date	10/02/2023	10/05/2023	10/10/2023	10/10/2023
Sample Type	Composite	Composite	Composite	Composite
Sample Start Date and Time	10/02/23 12:00 AM	10/05/23 12:00 AM	10/10/23 12:00 AM	10/10/23 12:00 AM
Sample Stop Date and Time	10/02/23 11:00 PM	10/05/23 11:00 PM	10/10/23 11:00 PM	10/10/23 11:00 PM
Composite Duration (hours) <sup>1</sup>	24	24	24	24
QA/QC				Field Duplicate
Sample Delivery Group (SDG)	320-105754-1	320-105969-1	320-105969-1	320-105969-1
Lab Sample ID	320-105754-2	320-105969-1	320-105969-2	320-105969-3
<i>Table 3+ (ng/L)</i>				
HFPO-DA	6.1	6.1	6.4	6.6
PFMOAA	14	15	15	16
PFO2HxA	8.5	9.2	8.3	8.8
PFO3OA	<2.0	2.3	2.5	2.1
PFO4DA	<2.0	<2.0	<2.0	<2.0
PFO5DA	<2.0	<2.0	<2.0	<2.0
PMPA	23	8.5	8.9	9.4
PEPA	<20	2.0	<2.0	2.3
PS Acid	<2.0	<2.0	<2.0	<2.0
Hydro-PS Acid	<2.0	<2.0	<2.0	<2.0
R-PSDA	4.4 J	<2.0	<2.0	<2.0
Hydrolyzed PSDA	2.4 J	<2.0	<2.0	<2.0
R-PSDCA	<2.0	<3.0	<3.0	<3.0
NVHOS	6.9	<3.0	<3.0	<3.0
EVE Acid	<2.0	<2.0	<2.0	<2.0
Hydro-EVE Acid	<2.0	<2.0	<2.0	<2.0
R-EVE	<2.0	<2.0	<2.0	<2.0
PES	<2.0	<2.0	<2.0	<2.0
PFECA B	<2.0	<2.0	<2.0	<2.0
PFECA-G	<2.0	<2.0	<2.0	<2.0
PFPrA	--	26	26	27
Perfluoroheptanoic Acid	4.5	4.7	6.1	6.3
<b>Total Attachment C<sup>2,3</sup></b>	<b>52</b>	<b>43</b>	<b>41</b>	<b>45</b>
<b>Total Table 3+ (17 compounds)<sup>3,4</sup></b>	<b>59</b>	<b>43</b>	<b>41</b>	<b>45</b>
<b>Total Table 3+ (18 compounds)<sup>3,5</sup></b>	<b>59</b> <small>(note 6)</small>	<b>69</b>	<b>67</b>	<b>72</b>
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	<b>65</b> <small>(note 6)</small>	<b>69</b>	<b>67</b>	<b>72</b>

**TABLE 3**  
**CAPE FEAR RIVER TAR HEEL ANALYTICAL RESULTS - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Sampling Event	Q4 2023	Q4 2023	Q4 2023	Q4 2023
Location ID	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CFR-TARHEEL-24-101223	CFR-TARHEEL-24-101623	CFR-TARHEEL-24-101923	CFR-TARHEEL-24-102323
Sample Date	10/12/2023	10/16/2023	10/19/2023	10/23/2023
Sample Type	Composite	Composite	Composite	Composite
Sample Start Date and Time	10/12/23 12:00 AM	10/16/23 12:00 AM	10/19/23 12:00 AM	10/23/23 12:00 AM
Sample Stop Date and Time	10/12/23 11:00 PM	10/16/23 11:00 PM	10/19/23 11:00 PM	10/23/23 11:00 PM
Composite Duration (hours) <sup>1</sup>	24	24	24	24
QA/QC				
Sample Delivery Group (SDG)	320-106157-1	320-106157-1	320-106379-1	320-106379-1
Lab Sample ID	320-106157-1	320-106157-2	320-106379-1	320-106379-2
<b>Table 3+ (ng/L)</b>				
HFPO-DA	6.0	7.6	5.8	5.3
PFMOAA	16	17	14	13
PFO2HxA	8.1	9.8	9.6	5.8
PFO3OA	2.2	2.3	2.2	<2.0
PFO4DA	<2.0	<2.0	<2.0	<2.0
PFO5DA	<2.0	<2.0	<2.0	<2.0
PMPA	7.8	11	9.3	6.1
PEPA	<2.0	2.5	2.1	<2.0
PS Acid	<2.0	<2.0	<2.0	<2.0
Hydro-PS Acid	<2.0	<2.0	<2.0	<2.0
R-PSDA	2.2 J	2.9 J	<2.0	2.1 J
Hydrolyzed PSDA	<2.0	2.2 J	<2.0	<2.0
R-PSDCA	<3.0	<3.0	<3.0	<3.0
NVHOS	<3.0	<3.0	<3.0	<3.0
EVE Acid	<2.0	<2.0	<2.0	<2.0
Hydro-EVE Acid	<2.0	<2.0	<2.0	<2.0
R-EVE	<2.0	<2.0	<2.0	<2.0
PES	<2.0	<2.0	<2.0	<2.0
PFECA B	<2.0	<2.0	<2.0	<2.0
PFECA-G	<2.0	<2.0	<2.0	<2.0
PFPrA	25	36	26	26
Perfluoroheptanoic Acid	4.7	5.9	5.2	6.0
<b>Total Attachment C<sup>2,3</sup></b>	<b>40</b>	<b>50</b>	<b>43</b>	<b>30</b>
<b>Total Table 3+ (17 compounds)<sup>3,4</sup></b>	<b>40</b>	<b>50</b>	<b>43</b>	<b>30</b>
<b>Total Table 3+ (18 compounds)<sup>3,5</sup></b>	<b>65</b>	<b>86</b>	<b>69</b>	<b>56</b>
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	<b>67</b>	<b>91</b>	<b>69</b>	<b>58</b>

**TABLE 3**  
**CAPE FEAR RIVER TAR HEEL ANALYTICAL RESULTS - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Sampling Event	Q4 2023	Q4 2023	Q4 2023	Q4 2023
Location ID	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CFR-TARHEEL-24-102623	CFR-TARHEEL-24-103023	CFR-TARHEEL-24-110223	CFR-TARHEEL-24-110623
Sample Date	10/26/2023	10/30/2023	11/02/2023	11/06/2023
Sample Type	Composite	Composite	Composite	Composite
Sample Start Date and Time	10/26/23 12:00 AM	10/30/23 12:00 AM	11/02/23 12:00 AM	11/06/23 12:00 AM
Sample Stop Date and Time	10/26/23 11:00 PM	10/30/23 11:00 PM	11/02/23 11:00 PM	11/06/23 11:00 PM
Composite Duration (hours) <sup>1</sup>	24	24	24	24
QA/QC				
Sample Delivery Group (SDG)	320-106734-1	320-106734-1	320-106957-1	320-106957-1
Lab Sample ID	320-106734-1	320-106734-2	320-106957-1	320-106957-2
<b>Table 3+ (ng/L)</b>				
HFPO-DA	6.0	6.8	7.7	7.5
PFMOAA	11	11	14	18
PFO2HxA	8.9	11	10	12
PFO3OA	2.6	2.4	2.7	2.2
PFO4DA	<2.0	<2.0	<2.0	<2.0
PFO5DA	<2.0	<2.0	<2.0	<2.0
PMPA	12	9.3	12	10
PEPA	<2.0	<2.0	<2.0	2.3
PS Acid	<2.0	<2.0	<2.0	<2.0
Hydro-PS Acid	<2.0	<2.0	<2.0	<2.0
R-PSDA	4.7 J	4.9 J	12 J	3.0 J
Hydrolyzed PSDA	2.3 J	2.5 J	3.4 J	3.2 J
R-PSDCA	<3.0	<3.0	<3.0	<3.0
NVHOS	<3.0	<3.0	<3.0	<3.0
EVE Acid	<2.0	<2.0	<2.0	<2.0
Hydro-EVE Acid	<2.0	<2.0	<2.0	<2.0
R-EVE	<2.0	<2.0	3.3 J	<2.0
PES	<2.0	<2.0	<2.0	<2.0
PFECA B	<2.0	<2.0	<2.0	<2.0
PFECA-G	<2.0	<2.0	<2.0	<2.0
PFPrA	17	19 J	34	23
Perfluoroheptanoic Acid	5.3	5.8	6.5	5.5
<b>Total Attachment C<sup>2,3</sup></b>	<b>41</b>	<b>41</b>	<b>46</b>	<b>52</b>
<b>Total Table 3+ (17 compounds)<sup>3,4</sup></b>	<b>41</b>	<b>41</b>	<b>46</b>	<b>52</b>
<b>Total Table 3+ (18 compounds)<sup>3,5</sup></b>	<b>58</b>	<b>60</b>	<b>80</b>	<b>75</b>
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	<b>65</b>	<b>67</b>	<b>99</b>	<b>81</b>

**TABLE 3**  
**CAPE FEAR RIVER TAR HEEL ANALYTICAL RESULTS - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Sampling Event	Q4 2023	Q4 2023	Q4 2023	Q4 2023
Location ID	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CFR-TARHEEL-24-110923	CFR-TARHEEL-24-111323	CFR-TARHEEL-24-111323-D	CFR-TARHEEL-24-111623
Sample Date	11/09/2023	11/13/2023	11/13/2023	11/16/2023
Sample Type	Composite	Composite	Composite	Composite
Sample Start Date and Time	11/09/23 12:00 AM	11/13/23 12:00 AM	11/13/23 12:00 AM	11/16/23 12:00 AM
Sample Stop Date and Time	11/09/23 11:00 PM	11/13/23 11:00 PM	11/13/23 11:00 PM	11/16/23 11:00 PM
Composite Duration (hours) <sup>1</sup>	24	24	24	24
QA/QC			Field Duplicate	
Sample Delivery Group (SDG)	320-107164-1	320-107164-1	320-107164-1	320-107540-1
Lab Sample ID	320-107164-1	320-107164-2	320-107164-3	320-107540-1
<b>Table 3+ (ng/L)</b>				
HFPO-DA	8.0	10	11	8.2
PFMOAA	20	18	17	20
PFO2HxA	14	14	15	11
PFO3OA	3.0	3.1	3.3	2.6
PFO4DA	<2.0	<2.0	<2.0	<2.0
PFO5DA	<2.0	<2.0	<2.0	<2.0
PMPA	11	13	11	12
PEPA	2.5	3.7	3.0	3.0
PS Acid	<2.0	<2.0	<2.0	<2.0
Hydro-PS Acid	<2.0	<2.0	<2.0	<2.0
R-PSDA	3.9 J	6.8 J	7.2 J	2.2 J
Hydrolyzed PSDA	3.8 J	4.1 J	4.1 J	2.4 J
R-PSDCA	<3.0	<3.0	<3.0	<3.0
NVHOS	<3.0	<3.0	<3.0	<3.0
EVE Acid	<2.0	<2.0	<2.0	<2.0
Hydro-EVE Acid	<2.0	<2.0	<2.0	<2.0
R-EVE	4.1 J	6.0 J	6.7 J	<2.0
PES	<2.0	<2.0	<2.0	<2.0
PFECA B	<2.0	<2.0	<2.0	<2.0
PFECA-G	<2.0	<2.0	<2.0	<2.0
PFPrA	24	27	27	30
Perfluoroheptanoic Acid	7.1	6.8	6.9	6.6
<b>Total Attachment C<sup>2,3</sup></b>	<b>59</b>	<b>62</b>	<b>60</b>	<b>57</b>
<b>Total Table 3+ (17 compounds)<sup>3,4</sup></b>	<b>59</b>	<b>62</b>	<b>60</b>	<b>57</b>
<b>Total Table 3+ (18 compounds)<sup>3,5</sup></b>	<b>83</b>	<b>89</b>	<b>87</b>	<b>87</b>
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	<b>94</b>	<b>110</b>	<b>110</b>	<b>91</b>

**TABLE 3**  
**CAPE FEAR RIVER TAR HEEL ANALYTICAL RESULTS - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Sampling Event	Q4 2023	Q4 2023	Q4 2023	Q4 2023
Location ID	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CFR-TARHEEL-24-112023	CFR-TARHEEL-24-112123	CFR-TARHEEL-24-112223	CAP4Q23-TARHEEL-24-112423
Sample Date	11/20/2023	11/21/2023	11/22/2023	11/24/2023
Sample Type	Composite	Composite	Composite	Composite
Sample Start Date and Time	11/20/23 12:00 AM	11/21/23 12:00 AM	11/22/23 12:00 AM	11/23/23 5:36 AM
Sample Stop Date and Time	11/20/23 11:00 PM	11/21/23 11:00 PM	11/22/23 11:00 PM	11/24/23 4:36 AM
Composite Duration (hours) <sup>1</sup>	24	24	24	24
QA/QC				
Sample Delivery Group (SDG)	320-107540-1	320-107540-1	320-107540-1	320-107480-1
Lab Sample ID	320-107540-2	320-107540-3	320-107540-4	320-107480-8
<b>Table 3+ (ng/L)</b>				
HFPO-DA	17	9.5	7.1	7.9
PFMOAA	22	22	19	11
PFO2HxA	19	13	10	9.8
PFO3OA	4.9	2.8	2.6	2.4
PFO4DA	<2.0	<2.0	<2.0	<2.0
PFO5DA	<2.0	<2.0	<2.0	<2.0
PMPA	29	15	12	12
PEPA	7.3	3.8	2.7	2.7
PS Acid	<2.0	<2.0	<2.0	<2.0
Hydro-PS Acid	<2.0	<2.0	<2.0	<2.0
R-PSDA	4.2 J	2.5 J	<2.0	2.0 J
Hydrolyzed PSDA	2.2 J	2.5 J	2.1 J	<2.0
R-PSDCA	<3.0	<3.0	<3.0	<3.0
NVHOS	<3.0	<3.0	<3.0	<3.0
EVE Acid	<2.0	<2.0	<2.0	<2.0
Hydro-EVE Acid	<2.0	<2.0	<2.0	<2.0
R-EVE	2.1 J	<2.0	<2.0	<2.0
PES	<2.0	<2.0	<2.0	<2.0
PFECA B	<2.0	<2.0	<2.0	<2.0
PFECA-G	<2.0	<2.0	<2.0	<2.0
PFPrA	44	31	27	25
Perfluoroheptanoic Acid	5.9	6.3	6.0	5.2
<b>Total Attachment C<sup>2,3</sup></b>	<b>99</b>	<b>66</b>	<b>53</b>	<b>46</b>
<b>Total Table 3+ (17 compounds)<sup>3,4</sup></b>	<b>99</b>	<b>66</b>	<b>53</b>	<b>46</b>
<b>Total Table 3+ (18 compounds)<sup>3,5</sup></b>	<b>140</b>	<b>97</b>	<b>80</b>	<b>71</b>
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	<b>150</b>	<b>100</b>	<b>83</b>	<b>73</b>

**TABLE 3**  
**CAPE FEAR RIVER TAR HEEL ANALYTICAL RESULTS - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Sampling Event	Q4 2023	Q4 2023	Q4 2023	Q4 2023
Location ID	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CFR-TARHEEL-24-112723	CFR-TARHEEL-24-113023	CFR-TARHEEL-24-120423	CAP4Q23-CFR-TARHEEL-120623
Sample Date	11/27/2023	11/30/2023	12/04/2023	12/06/2023
Sample Type	Composite	Composite	Composite	Grab
Sample Start Date and Time	11/27/23 12:00 AM	11/30/23 12:00 AM	12/04/23 12:00 AM	12/06/23 4:38 PM
Sample Stop Date and Time	11/27/23 11:00 PM	11/30/23 11:00 PM	12/04/23 11:00 PM	--
Composite Duration (hours) <sup>1</sup>	24	24	24	0
QA/QC				
Sample Delivery Group (SDG)	320-107657-1	320-107657-1	320-107894-1	320-107896-1
Lab Sample ID	320-107657-1	320-107657-2	320-107894-1	320-107896-2
<b>Table 3+ (ng/L)</b>				
HFPO-DA	14 J	9.6 J	7.2	7.4
PFMOAA	21 J	20 J	19	18
PFO2HxA	12 J	10 J	8.2	9.1
PFO3OA	4.2 J	2.7 J	2.2	2.1
PFO4DA	<2.0 UJ	<2.0 UJ	<2.0	<2.0
PFO5DA	<2.0 UJ	<2.0 UJ	<2.0	<2.0
PMPA	16 J	16 J	12	11
PEPA	3.0 J	2.9 J	2.2	<2.0
PS Acid	<2.0 UJ	<2.0 UJ	<2.0	<2.0
Hydro-PS Acid	<2.0 UJ	<2.0 UJ	<2.0	<2.0
R-PSDA	4.0 J	3.4 J	2.8 J	3.3 J
Hydrolyzed PSDA	2.0 J	2.1 J	2.1 J	2.6 J
R-PSDCA	<3.0 UJ	<3.0 UJ	<3.0	<3.0
NVHOS	<3.0 UJ	<3.0 UJ	<3.0	<3.0
EVE Acid	<2.0 UJ	<2.0 UJ	<2.0	<2.0
Hydro-EVE Acid	<2.0 UJ	<2.0 UJ	<2.0	<2.0
R-EVE	2.3 J	<2.0 UJ	<2.0	<2.0
PES	<2.0 UJ	<2.0 UJ	<2.0	<2.0
PFECA B	<2.0 UJ	<2.0 UJ	<2.0	<2.0
PFECA-G	<2.0 UJ	<2.0 UJ	<2.0	<2.0
PFPrA	33 J	32 J	31	32
Perfluoroheptanoic Acid	6.1 J	5.2 J	4.2	5.0
<b>Total Attachment C<sup>2,3</sup></b>	<b>70</b>	<b>61</b>	<b>51</b>	<b>48</b>
<b>Total Table 3+ (17 compounds)<sup>3,4</sup></b>	<b>70</b>	<b>61</b>	<b>51</b>	<b>48</b>
<b>Total Table 3+ (18 compounds)<sup>3,5</sup></b>	<b>100</b>	<b>93</b>	<b>82</b>	<b>80</b>
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	<b>110</b>	<b>99</b>	<b>87</b>	<b>86</b>



**TABLE 3**  
**CAPE FEAR RIVER TAR HEEL ANALYTICAL RESULTS - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Sampling Event	Q4 2023	Q4 2023	Q4 2023	Q4 2023
Location ID	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CFR-TARHEEL-24-120723	CFR-TARHEEL-24-121123	CFR-TARHEEL-24-121223	CFR-TARHEEL-24-121223-D
Sample Date	12/07/2023	12/11/2023	12/12/2023	12/12/2023
Sample Type	Grab	Composite	Composite	Composite
Sample Start Date and Time	12/07/23 12:00 AM	12/11/23 12:00 AM	12/12/23 12:00 AM	12/12/23 12:00 AM
Sample Stop Date and Time	12/07/23 11:00 PM	12/11/23 11:00 PM	12/12/23 11:00 PM	12/12/23 11:00 PM
Composite Duration (hours) <sup>1</sup>	24	24	24	24
QA/QC				Field Duplicate
Sample Delivery Group (SDG)	320-107894-1	320-108044-1	320-108044-1	320-108044-1
Lab Sample ID	320-107894-2	320-108044-1	320-108044-2	320-108044-3
<b>Table 3+ (ng/L)</b>				
HFPO-DA	7.6	6.8	6.6	6.7
PFMOAA	20	14	12	11
PFO2HxA	8.1	10	10	8.7
PFO3OA	2.0	<2.0	2.4	2.4
PFO4DA	<2.0	<2.0	<2.0	<2.0
PFO5DA	<2.0	<2.0	<2.0	<2.0
PMPA	12	11	12	11
PEPA	<2.0	2.8	2.2	2.6
PS Acid	<2.0	<2.0	<2.0	<2.0
Hydro-PS Acid	<2.0	<2.0	<2.0	<2.0
R-PSDA	2.9 J	4.0 J	5.5 J	5.1 J
Hydrolyzed PSDA	2.4 J	<2.0	<2.0	<2.0
R-PSDCA	<3.0	<3.0	<3.0	<3.0
NVHOS	<3.0	<3.0	<3.0	<3.0
EVE Acid	<2.0	<2.0	<2.0	<2.0
Hydro-EVE Acid	<2.0	<2.0	<2.0	<2.0
R-EVE	<2.0	<2.0	<2.0	<2.0
PES	<2.0	<2.0	<2.0	<2.0
PFECA B	<2.0	<2.0	<2.0	<2.0
PFECA-G	<2.0	<2.0	<2.0	<2.0
PFPrA	29	26	24	30
Perfluoroheptanoic Acid	4.7	3.7	3.9	3.9
<b>Total Attachment C<sup>2,3</sup></b>	<b>50</b>	<b>45</b>	<b>45</b>	<b>42</b>
<b>Total Table 3+ (17 compounds)<sup>3,4</sup></b>	<b>50</b>	<b>45</b>	<b>45</b>	<b>42</b>
<b>Total Table 3+ (18 compounds)<sup>3,5</sup></b>	<b>79</b>	<b>71</b>	<b>140</b>	<b>140</b>
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	<b>84</b>	<b>75</b>	<b>75</b>	<b>78</b>

TABLE 3

**CAPE FEAR RIVER TAR HEEL ANALYTICAL RESULTS - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Sampling Event	Q4 2023	Q4 2023	Q4 2023
Location ID	CFR-TARHEEL	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CFR-TARHEEL-24-121723	CFR-TARHEEL-121823	CFR-TARHEEL-121923
Sample Date	12/17/2023	12/18/2023	12/19/2023
Sample Type	Composite	Composite	Composite
Sample Start Date and Time	12/17/23 12:00 AM	12/18/23 12:00 AM	12/19/23 12:00 AM
Sample Stop Date and Time	12/17/23 11:00 PM	12/18/23 11:00 PM	12/19/23 11:00 PM
Composite Duration (hours) <sup>1</sup>	24	24	24
QA/QC		Field Duplicate	
Sample Delivery Group (SDG)	320-108237-1	320-108237-1	320-108237-1
Lab Sample ID	320-108237-1	320-108237-2	320-108237-3
<b>Table 3+ (ng/L)</b>			
HFPO-DA	4.2 J	7.1 J	<4.0
PFMOAA	11 J	5.7 J	<2.0
PFO2HxA	5.1 J	8.2 J	<2.0
PFO3OA	<2.0 UJ	2.8 J	<2.0
PFO4DA	<2.0 UJ	<2.0 UJ	<2.0
PFO5DA	<2.0 UJ	<2.0 UJ	<2.0
PMPA	6.5 J	18 J	<2.0
PEPA	<2.0 UJ	2.0 J	<2.0
PS Acid	<2.0 UJ	<2.0 UJ	<2.0
Hydro-PS Acid	<2.0 UJ	<2.0 UJ	<2.0
R-PSDA	<2.0 UJ	3.4 J	<2.0
Hydrolyzed PSDA	<2.0 UJ	<2.0 UJ	<2.0
R-PSDCA	<3.0 UJ	<3.0 UJ	<3.0
NVHOS	<3.0 UJ	<3.0 UJ	<3.0
EVE Acid	<2.0 UJ	<2.0 UJ	<2.0
Hydro-EVE Acid	<2.0 UJ	<2.0 UJ	<2.0
R-EVE	<2.0 UJ	<2.0 UJ	<2.0
PES	<2.0 UJ	<2.0 UJ	<2.0
PFECA B	<2.0 UJ	<2.0 UJ	<2.0
PFECA-G	<2.0 UJ	<2.0 UJ	<2.0
PFPrA	15 J	24 J	<5.0
Perfluoroheptanoic Acid	5.1 J	3.1 J	<2.0
<b>Total Attachment C<sup>2,3</sup></b>	27	44	ND
<b>Total Table 3+ (17 compounds)<sup>3,4</sup></b>	27	44	ND
<b>Total Table 3+ (18 compounds)<sup>3,5</sup></b>	42	68	ND
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	42	71	ND

**TABLE 3**  
**CAPE FEAR RIVER TAR HEEL ANALYTICAL RESULTS - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Sampling Event	Q4 2023	Q4 2023
Location ID	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CFR-TARHEEL-24-122523	CFR-TARHEEL-24-122723
Sample Date	12/25/2023	12/27/2023
Sample Type	Composite	Composite
Sample Start Date and Time	12/25/23 12:00 AM	12/27/23 12:00 AM
Sample Stop Date and Time	12/25/23 11:00 PM	12/27/23 11:00 PM
Composite Duration (hours) <sup>1</sup>	24	24
QA/QC		
Sample Delivery Group (SDG)	320-108425-1	320-108425-1
Lab Sample ID	320-108425-1	320-108425-2
<b>Table 3+ (ng/L)</b>		
HFPO-DA	<4.0	<4.0
PFMOAA	<b>3.6</b>	<b>4.0</b>
PFO2HxA	<b>2.9</b>	<b>3.3</b>
PFO3OA	<2.0	<2.0
PFO4DA	<2.0	<2.0
PFO5DA	<2.0	<2.0
PMPA	<2.0	<2.0
PEPA	<2.0	<2.0
PS Acid	<2.0	<2.0
Hydro-PS Acid	<2.0	<2.0
R-PSDA	<2.0	<2.0
Hydrolyzed PSDA	<2.0	<2.0
R-PSDCA	<3.0	<3.0
NVHOS	<3.0	<3.0
EVE Acid	<2.0	<2.0
Hydro-EVE Acid	<2.0	<2.0
R-EVE	<2.0	<2.0
PES	<2.0	<2.0
PFECA B	<2.0	<2.0
PFECA-G	<2.0	<2.0
PFPrA	<b>9.8</b>	<b>11</b>
Perfluoroheptanoic Acid	<b>3.1</b>	<b>2.8</b>
<b>Total Attachment C<sup>2,3</sup></b>	<b>6.5</b>	<b>7.3</b>
<b>Total Table 3+ (17 compounds)<sup>3,4</sup></b>	<b>6.5</b>	<b>7.3</b>
<b>Total Table 3+ (18 compounds)<sup>3,5</sup></b>	<b>16</b>	<b>18</b>
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	<b>16</b>	<b>18</b>

**Notes:****Bold - Analyte detected above associated reporting limit.**

-- - not analyzed

J - Analyte detected. Reported value may not be accurate or precise.

ND - no Table 3+ analytes were detected above the associated reporting limits.

ng/L - nanograms per liter

QA/QC - Quality assurance/ quality control

SDG - Sample Delivery Group

UJ - Analyte not detected. Reporting limit may not be accurate or precise.

&lt; - Analyte not detected above associated reporting limit.

1 - Samples with a compositing duration of zero (0)

hours are grab samples.

2 - Total Attachment C does not include Perfluoroheptanoic acid (PFHpA).

3 - Total Table 3+ and Total Attachment C were calculated including J qualified data but not non-detect data. The sum is rounded to two significant figures.

4 - Total Table 3+ (17 compounds) does not include PFHpA, R-PSDA, Hydrolyzed PSDA, R-EVE, and PFPrA.

5 - Total Table 3+ (18 compounds) does not include PFHpA, R-PSDA, Hydrolyzed PSDA, and R-EVE.

6 - PFPrA was not analyzed for this sample and therefore was not included in the Total Table 3+ (18 compounds) and Total Table 3+ (21 compounds) PFAS grouping.

**TABLE 4**  
**SURFACE WATER ANALYTICAL RESULTS AT DOWNSTREAM LOCATIONS**  
 Chemours Fayetteville Works, North Carolina

Location ID	CFR-BLADEN	CFR-KINGS	CFR-TARHEEL	CFR-TARHEEL
Field Sample ID	CAP4Q23-CFR-BLADEN-120623	CAP4Q23-CFR-KINGS-121423	CAP4Q23-CFR-TARHEEL-120623	CAP4Q23-TARHEEL-24-112423
Sample Date and Time	12/06/2023	12/14/2023	12/06/2023	11/24/2023
QA/QC				
Sample Delivery Group (SDG)	320-107896-1	320-108081-1	320-107896-1	320-107480-1
Lab Sample ID	320-107896-1	320-108081-1	320-107896-2	320-107480-8
<b>Table 3+ (ng/L)</b>				
HFPO-DA	7.4	7.0 J	7.4	7.9
PFMOAA	20	11 J	18	11
PFO2HxA	8.9	9.8 J	9.1	9.8
PFO3OA	2.6	3.2 J	2.1	2.4
PFO4DA	<2.0	<2.0 UJ	<2.0	<2.0
PFO5DA	<2.0	<2.0 UJ	<2.0	<2.0
PMPA	11	13 J	11	12
PEPA	2.2	<2.0 UJ	<2.0	2.7
PS Acid	<2.0	<2.0 UJ	<2.0	<2.0
Hydro-PS Acid	<2.0	<2.0 UJ	<2.0	<2.0
R-PSDA	3.0 J	15 J	3.3 J	2.0 J
Hydrolyzed PSDA	2.9 J	4.6 J	2.6 J	<2.0
R-PSDCA	<3.0	<3.0 UJ	<3.0	<3.0
NVHOS	<3.0	<3.0 UJ	<3.0	<3.0
EVE Acid	<2.0	<2.0 UJ	<2.0	<2.0
Hydro-EVE Acid	<2.0	<2.0 UJ	<2.0	<2.0
R-EVE	2.0 J	28 J	<2.0	<2.0
PES	<2.0	<2.0 UJ	<2.0	<2.0
PFECA B	<2.0	<2.0 UJ	<2.0	<2.0
PFECA-G	<2.0	<2.0 UJ	<2.0	<2.0
PFPrA	31	28 J	32	25
Perfluoroheptanoic Acid	4.8	3.7 J	5.0	5.2
<b>Total Attachment C<sup>1,3</sup></b>	<b>52</b>	<b>44</b>	<b>48</b>	<b>46</b>
<b>Total Table 3+ (17 compounds)<sup>2,3</sup></b>	<b>52</b>	<b>44</b>	<b>48</b>	<b>46</b>
<b>Total Table 3+ (18 compounds)<sup>2,4</sup></b>	<b>83</b>	<b>72</b>	<b>80</b>	<b>71</b>
<b>Total Table 3+ (21 compounds)<sup>3</sup></b>	<b>91</b>	<b>120</b>	<b>86</b>	<b>73</b>

**Notes:**

1 - Total Attachment C does not include Perfluoroheptanoic acid (PFHpA).

2 - Total Table 3+ (17 compounds) does not include PFHpA, R-PSDA, Hydrolyzed PSDA, R-EVE, and PFPrA.

3 - Total Table 3+ and Total Attachment C were calculated including J qualified data but not non-detect data. The sum is rounded to two significant figures.

4 - Total Table 3+ (18 compounds) does not include PFHpA, R-PSDA, Hydrolyzed PSDA, and R-EVE.

**Bold** - Analyte detected above associated reporting limit

J - Analyte detected. Reported value may not be accurate or precise.

ND - no analytes were detected above the associated reporting limits.

ng/L - nanograms per liter

QA/QC - Quality assurance/ quality control

SDG - Sample Delivery Group

**TABLE 5**  
**CAPE FEAR RIVER PFAS MASS LOAD BY COMPOUND AND TIME INTERVAL - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Interval Details			Calculated Mass Load <sup>2</sup> (lbs)																									Total Attachment C <sup>3</sup>	Total Table 3+ (17 Compounds) <sup>4</sup>	Total Table 3+ (18 Compounds) <sup>5</sup>	Total Table 3+ (21 Compounds)
Interval ID	Start Time <sup>1</sup>	End Time <sup>1</sup>	Total River Volume (MG)	HFPO-DA	PFMOAA	PFO2HxA	PFO3OA	PFO4DA	PFO5DA	PMPA	PEPA	PS Acid	Hydro-PS Acid	R-PSDA	Hydrolyzed PSDA	R-PSDCA	NVHOS	EVE Acid	Hydro-EVE Acid	R-EVE	PES	PFECA B	PFECA-G	PFHpA	PFPrA						
2023_Q4_1 <sup>6</sup>	10/1/23 0:00	10/2/23 0:01	526	0.03	0.06	0.04	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.02	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.02	--	0.22	0.25	0.25	0.27		
2023_Q4_2 <sup>6</sup>	10/2/23 0:01	10/2/23 23:01	557	0.03	0.07	0.04	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.02	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.02	--	0.24	0.27	0.27	0.30		
2023_Q4_3	10/2/23 23:01	10/5/23 0:01	1,082	0.06	0.13	0.08	0.01	0.00	0.00	0.14	0.01	0.00	0.00	0.02	0.01	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.43	0.46	0.58	0.61		
2023_Q4_4	10/5/23 0:01	10/5/23 23:01	442	0.02	0.06	0.03	0.01	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.16	0.16	0.25	0.25		
2023_Q4_5	10/5/23 23:01	10/10/23 0:01	2,027	0.11	0.25	0.15	0.04	0.00	0.00	0.15	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.44	0.71	0.71	1.15	1.15		
2023_Q4_6	10/10/23 0:01	10/10/23 23:01	484	0.03	0.06	0.03	0.01	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.11	0.17	0.17	0.28	0.28		
2023_Q4_7	10/10/23 23:01	10/12/23 0:01	447	0.02	0.06	0.03	0.01	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.15	0.15	0.25	0.25		
2023_Q4_8	10/12/23 0:01	10/12/23 23:01	356	0.02	0.05	0.02	0.01	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.07	0.12	0.12	0.19	0.20		
2023_Q4_9	10/12/23 23:01	10/16/23 0:01	1,539	0.09	0.21	0.11	0.03	0.00	0.00	0.12	0.02	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.39	0.58	0.58	0.97	1.02		
2023_Q4_10	10/16/23 0:01	10/16/23 23:01	565	0.04	0.08	0.05	0.01	0.00	0.00	0.05	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.17	0.24	0.24	0.41	0.43		
2023_Q4_11	10/16/23 23:01	10/19/23 0:01	1,155	0.06	0.15	0.09	0.02	0.00	0.00	0.10	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.30	0.45	0.45	0.75	0.77		
2023_Q4_12	10/19/23 0:01	10/19/23 23:01	511	0.02	0.06	0.04	0.01	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.11	0.18	0.18	0.29	0.29		
2023_Q4_13	10/19/23 23:01	10/23/23 0:01	1,944	0.09	0.22	0.12	0.02	0.00	0.00	0.12	0.02	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.42	0.59	0.59	1.02	1.03		
2023_Q4_14	10/23/23 0:01	10/23/23 23:01	577	0.03	0.06	0.03	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.13	0.15	0.15	0.27	0.28		
2023_Q4_15	10/23/23 23:01	10/26/23 0:01	1,060	0.05	0.11	0.07	0.01	0.00	0.00	0.08	0.00	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.19	0.31	0.31	0.50	0.54		
2023_Q4_16	10/26/23 0:01	10/26/23 23:01	503	0.03	0.05	0.04	0.01	0.00	0.00	0.05	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.17	0.17	0.24	0.27		
2023_Q4_17	10/26/23 23:01	10/30/23 0:01	1,497	0.08	0.14	0.12	0.03	0.00	0.00	0.13	0.00	0.00	0.00	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.22	0.51	0.51	0.73	0.82		
2023_Q4_18	10/30/23 0:01	10/30/23 23:01	450	0.03	0.04	0.04	0.01	0.00	0.00	0.03	0.00	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.15	0.15	0.22	0.25		
2023_Q4_19	10/30/23 23:01	11/2/23 0:01	936	0.06	0.10	0.08	0.02	0.00	0.00	0.08	0.00	0.00	0.00	0.07	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.05	0.21	0.34	0.34	0.55	0.65		
2023_Q4_20	11/2/23 0:01	11/2/23 23:01	406	0.03	0.05	0.03	0.01	0.00	0.00	0.04	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.12	0.16	0.16	0.27	0.34		
2023_Q4_21	11/2/23 23:01	11/6/23 0:01	1,350	0.09	0.18	0.12	0.03	0.00	0.00	0.12	0.01	0.00	0.00	0.08	0.04	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.07	0.32	0.55	0.55	0.88	1.02		
2023_Q4_22	11/6/23 0:01	11/6/23 23:01	374	0.02	0.06	0.04	0.01	0.00	0.00	0.03	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.16	0.16	0.23	0.25		
2023_Q4_23	11/6/23 23:01	11/9/23 0:01	795	0.05	0.13	0.09	0.02	0.00	0.00	0.07	0.02	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.04	0.16	0.37	0.37	0.52	0.58		
2023_Q4_24	11/9/23 0:01	11/9/23 23:01	372	0.02	0.06	0.04	0.01	0.00	0.00	0.03	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.07	0.18	0.18	0.26	0.29		
2023_Q4_25	11/9/23 23:01	11/13/23 0:01	1,194	0.09	0.19	0.14	0.03	0.00	0.00	0.12	0.03	0.00	0.00	0.05	0.04	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.07	0.25	0.60	0.60	0.85	1.00		
2023_Q4_26	11/13/23 0:01	11/13/23 23:01	425	0.04	0.06	0.05	0.01	0.00	0.00	0.04	0.01	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.02	0.10	0.22	0.22	0.31	0.37		
2023_Q4_27	11/13/23 23:01	11/16/23 0:01	816	0.06	0.13	0.09	0.02	0.00	0.00	0.09	0.02	0.00	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.05	0.19	0.40	0.40	0.60	0.67		
2023_Q4_28	11/16/23 0:01	11/16/23 23:01	396	0.03	0.07	0.04	0.01	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.19	0.19	0.29	0.30		
2023_Q4_29	11/6/23 23:01	11/20/23 0:01	5,149	0.54	0.90	0.64	0.16	0.00	0.00	0.88	0.22	0.00	0.00	0.14	0.10	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.27	1.59	3.35	3.35	4.94	5.22		
2023_Q4_30	11/20/23 0:01	11/20/23 23:01	368	0.05	0.07	0.06	0.02	0.00	0.00	0.09	0.02	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.02	0.14	0.30	0.30	0.44	0.47		
2023_Q4_31	11/20/23 23:01	11/21/23 0:01	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01		
2023_Q4_32	11/21/23 0:01	11/21/23 23:01	312	0.02	0.06	0.03	0.01	0.00	0.00	0.04	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.08	0.17	0.17	0.25	0.27		
2023_Q4_33	11/21/23 23:01	11/22/23 0:01	10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.01		
2023_Q4_34	11/22/23 0:01	11/22/23 23:01	439	0.03	0.07	0.04	0.01	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.10	0.20	0.20	0.29	0.30		
2023_Q4_35	11/22/23 23:01	11/24/23 0:01	2,214	0.14	0.28	0.18	0.05	0.00	0.00	0.22	0.05	0.00	0.00	0.02	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.48	0.92	0.92	1.40	1.43			
2023_Q4_36	11/24/23 0:01	11/24/23 23:01	1,437	0.09	0.13	0.12	0.03	0.00	0.00	0.14	0.03	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.30	0.55	0.55	0.85	0.87		
2023_Q4_37	11/24/23 23:01	11/27/23 0:01	2,310	0.21	0.31	0.21	0.06	0.00	0.00	0.27	0.05	0.00	0.00	0.06	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.11	0.56	1.12	1.12	1.68	1.78		
2023_Q4_38	11/27/23 0:01	11/27/23 23:01	832	0.10	0.15	0.08	0.03	0.00	0.00	0.11	0.02	0.00	0.00	0.03	0.01	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.04	0.23	0.49	0.49	0.72	0.77		
2023_Q4_39	11/27/23 23:01	11/30/23 0:01	1,292	0.13	0.22	0.12	0.04	0.00	0.00	0.17	0.03	0.00	0.00	0.04	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.06	0.35	0.71	0.71	1.06	1.13		
2023_Q4_40	11/30/23 0:01	11/30/23 23:01	517	0.04	0.09	0.04	0.01	0.00	0.00	0.07	0.01	0.																			

**TABLE 5  
CAPE FEAR RIVER PFAS MASS LOAD BY COMPOUND AND TIME INTERVAL - Q4 2023  
Chemours Fayetteville Works, North Carolina**

Interval Details			Calculated Mass Load <sup>2</sup> (lbs)																								Total Attachment C <sup>3</sup>	Total Table 3+ (17 Compounds) <sup>4</sup>	Total Table 3+ (18 Compounds) <sup>5</sup>	Total Table 3+ (21 Compounds)
Interval ID	Start Time <sup>1</sup>	End Time <sup>1</sup>	Total River Volume (MG)	HFPO-DA	PFMOAA	PFO2HxA	PFO3OA	PFO4DA	PFO5DA	PMPA	PEPA	PS Acid	Hydro-PS Acid	R-PSDA	Hydrolyzed PSDA	R-PSDCA	NVHOS	EVE Acid	Hydro-EVE Acid	R-EVE	PES	PFECA B	PFECA-G	PFHpA	PFPrA					
2023_Q4_48	12/11/23 23:01	12/12/23 0:01	40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.01	0.02	0.02	
2023_Q4_49	12/12/23 0:01	12/12/23 23:01	1,504	0.08	0.15	0.13	0.03	0.00	0.00	0.15	0.03	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.30	0.57	0.57	0.87	0.94
2023_Q4_50	12/12/23 23:01	12/17/23 0:01	7,331	0.33	0.70	0.46	0.07	0.00	0.00	0.57	0.07	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	1.19	2.20	2.20	3.40	3.56	
2023_Q4_51	12/17/23 0:01	12/17/23 23:01	958	0.03	0.09	0.04	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.12	0.21	0.21	0.33	0.33	
2023_Q4_52	12/17/23 23:01	12/18/23 10:17	2,072	0.11	0.13	0.12	0.03	0.00	0.00	0.25	0.02	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.36	0.66	0.66	1.02	1.06	
2023_Q4_53	12/18/23 10:17	12/19/23 9:50	10,334	0.31	0.25	0.35	0.12	0.00	0.00	0.78	0.09	0.00	0.00	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	1.03	1.89	1.89	2.92	3.07	
2023_Q4_54	12/19/23 9:50	12/25/23 0:01	39,609	0.00	0.60	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.51	1.62	1.07	1.07	2.69	2.69	
2023_Q4_55	12/25/23 0:01	12/25/23 23:01	2,584	0.00	0.08	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.21	0.14	0.14	0.35	0.35	
2023_Q4_56	12/25/23 23:01	12/27/23 0:01	2,649	0.00	0.08	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.23	0.15	0.15	0.38	0.38	
2023_Q4_57	12/27/23 0:01	12/27/23 23:01	3,354	0.00	0.11	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.31	0.20	0.20	0.51	0.51	
2023_Q4_58	12/27/23 23:01	1/1/24 0:00	33,031	0.00	1.10	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.77	3.03	2.01	2.01	5.04	5.04	
<b>Total Mass Load (lbs)</b>																										<b>28</b>	<b>28</b>	<b>47</b>	<b>49</b>	

**Notes**

- 1 - Start and end times are adjusted based on sampling times ± one hour to account for the total flow of the Cape Fear River.
- 2 - The calculated mass load is a product of weighted concentration and total river flow. Refer to the Cape Fear River PFAS Mass Loading Calculation Protocol Version 2 (Geosyntec, 2020a) for more details.
- 3 - Total Attachment C does not include Perfluoroheptanoic acid (PFHpA).
- 4 - Total Table 3+ (17 compounds) does not include PFHpA, R-PSDA, Hydrolyzed PSDA, R-EVE, and PFPrA.
- 5 - Total Table 3+ (18 compounds) does not include PFHpA, R-PSDA, Hydrolyzed PSDA, and R-EVE.
- 6 - The Total Table 3+ (21 compounds) mass load for this interval does not include PFPrA because the associated sample was not analyzed for PFPrA.

Where mass loads are equal to 0 kg, the compound was not detected above the reporting limit.

lbs - pounds  
 MG - million gallons  
 NA - Compound not analyzed

TABLE 6

Geosyntec Consultants of NC, P.C.

## PERCENT REDUCTION LOAD FROM BASELINE PERIOD - Q2 2021 THROUGH Q4 2023

## Chemours Fayetteville Works, North Carolina

Reporting Period After Baseline	Total River volume (MG)	Total Table 3+ (17 Compounds) <sup>2</sup>			
		Measured Load in Cape Fear River (lbs) <sup>3</sup>	Total Measured Load Over Rolling Prior Four-Quarter (lbs)	Total Baseline Load (lbs)	Percent Reduction Load from Baseline Projected Load
Q2 2021	184,977	170	--	--	--
Q3 2021	156,006	89	--	--	--
Q4 2021	73,532	42	--	--	--
Q1 2022	380,263	72	373	947	61%
Q2 2022	175,562	33	237	947	75%
Q3 2022	78,649	23	171	947	82%
Q4 2022	164,830	38	167	947	82%
Q1 2023	324,227	51	146	947	85%
Q2 2023	298,943	25	137	947	85%
Q3 2023	140,296	25	139	947	85%
Q4 2023	146,912	28	130	947	86%

**Notes:**

1 - The 12-month baseline period is between Q2 2020 through Q1 2021.

2 - Total Table 3+ (17 compounds) does not include Perfluoroheptanoic acid (PFHpA), R-PSDA, Hydrolyzed PSDA, R-EVE, and PFPrA.

3 - Measured load in Cape Fear River represent loads measured in the Cape Fear River at the CFR-TARHEEL sampling location downstream of the Site.

-- - not calculated

lbs - pounds

MG - million gallons

**TABLE 7**  
**SUMMARY OF TOTAL PFAS MASS DISCHARGE AT TAR HEEL FERRY ROAD BRIDGE - Q4 2023**  
**Chemours Fayetteville Works, North Carolina**

Field Sample ID	Collection Date	Hours Composit <sup>1</sup>	Concentrations (ng/L)				Total Volume (MG) <sup>6</sup>	Instantaneous Flow Rate (ft <sup>3</sup> /s) <sup>7</sup>	Mass Discharge (mg/s)			
			Total Attachment C <sup>2</sup>	Total Table 3+ (17 compounds) <sup>3</sup>	Total Table 3+ (17 compounds) <sup>3</sup>	Total Table 3+ (21 compounds)			Total Attachment C <sup>2</sup>	Total Table 3+ (17 compounds) <sup>3</sup>	Total Table 3+ (18 compounds) <sup>4</sup>	Total Table 3+ (21 compounds)
CFR-TARHEEL-24-100223 <sup>5</sup>	10/2/23 23:01	24	52	59	59	65	557	--	1.3	1.5	1.5	1.7
CFR-TARHEEL-24-100523	10/5/23 23:01	24	43	43	69	69	442	--	0.9	0.9	1.4	1.4
CFR-TARHEEL-24-101023	10/10/23 23:01	24	41	41	67	67	484	--	0.9	0.9	1.5	1.5
CFR-TARHEEL-24-101023-D	10/10/23 23:01	24	45	45	72	72	484	--	1.0	1.0	1.6	1.6
CFR-TARHEEL-24-101223	10/12/23 23:01	24	40	40	65	67	356	--	0.7	0.7	1.1	1.1
CFR-TARHEEL-24-101623	10/16/23 23:01	24	50	50	86	91	565	--	1.3	1.3	2.2	2.4
CFR-TARHEEL-24-101923	10/19/23 23:01	24	43	43	69	69	511	--	1.0	1.0	1.6	1.6
CFR-TARHEEL-24-102323	10/23/23 23:01	24	30	30	56	58	577	--	0.8	0.8	1.5	1.5
CFR-TARHEEL-24-102623	10/26/23 23:01	24	41	41	58	65	503	--	0.9	0.9	1.3	1.5
CFR-TARHEEL-24-103023	10/30/23 23:01	24	41	41	60	67	450	--	0.8	0.8	1.2	1.4
CFR-TARHEEL-24-110223	11/2/23 23:01	24	46	46	80	99	406	--	0.9	0.9	1.5	1.8
CFR-TARHEEL-24-110623	11/6/23 23:01	24	52	52	75	81	370	--	0.9	0.9	1.3	1.4
CFR-TARHEEL-24-110923	11/9/23 23:01	24	59	59	83	94	372	--	1.0	1.0	1.4	1.6
CFR-TARHEEL-24-111323	11/13/23 23:01	24	62	62	89	110	425	--	1.2	1.2	1.7	2.1
CFR-TARHEEL-24-111323-D	11/13/23 23:01	24	60	60	87	110	425	--	1.2	1.2	1.7	2.0
CFR-TARHEEL-24-111623	11/16/23 23:01	24	57	57	87	91	396	--	1.0	1.0	1.6	1.7
CFR-TARHEEL-24-112023	11/20/23 23:01	24	99	99	140	150	368	--	1.7	1.7	2.4	2.6
CFR-TARHEEL-24-112123	11/21/23 23:01	24	66	66	97	100	312	--	0.9	0.9	1.4	1.5
CFR-TARHEEL-24-112223	11/22/23 23:01	24	53	53	80	83	439	--	1.1	1.1	1.6	1.7
CAP4Q23-TARHEEL-24-112423	11/24/23 4:36	24	62	62	87	89	1,780	--	5.0	5.0	7.1	7.2
CFR-TARHEEL-24-112723	11/27/23 23:01	24	70	70	100	110	832	--	2.7	2.7	3.9	4.2
CFR-TARHEEL-24-113023	11/30/23 23:01	24	61	61	93	99	517	--	1.4	1.4	2.2	2.3
CFR-TARHEEL-24-120423	12/4/23 23:01	24	51	51	82	87	518	--	1.2	1.2	1.9	2.1
CFR-TARHEEL-24-120723	12/7/23 23:01	24	50	50	79	84	497	--	1.1	1.1	1.8	1.9
CAP4Q23-CFR-TARHEEL-120623	12/6/23 16:30	0	61	61	93	99	--	793	1.4	1.4	2.1	2.2
CFR-TARHEEL-24-121123	12/11/23 23:01	24	45	45	71	75	589	--	1.2	1.2	1.9	2.0
CFR-TARHEEL-24-121223	12/12/23 23:01	24	45	45	69	75	1,504	--	3.1	3.1	4.8	5.1
CFR-TARHEEL-24-121723	12/17/23 23:01	24	27	27	42	42	958	--	1.2	1.2	1.8	1.8
CFR-TARHEEL-121823	12/18/23 10:17	0	44	44	68	71	--	7,860	9.7	9.8	15	16
CFR-TARHEEL-121923	12/19/23 9:50	0	0	0	0	0	--	18,800	0	0	0	0
CFR-TARHEEL-24-122523	12/25/23 23:01	24	6.5	6.5	16	16	2,584	--	0.8	0.8	1.9	1.9
CFR-TARHEEL-24-122723	12/27/23 23:01	24	7.3	7.3	18	18	3,354	--	1.1	1.1	2.8	2.8

**Notes:**

- 1 - Samples with a compositing duration of zero (0) hours are grab samples.  
2 - Total Attachment C does not include Perfluoroheptanoic acid (PFHpA).  
3 - Total Table 3+ (17 compounds) does not include PFHpA, R-PSDA, Hydrolyzed PSDA, R-EVE, and PFPrA.  
4 - Total Table 3+ (18 compounds) does not include PFHpA, R-PSDA, Hydrolyzed PSDA, and R-EVE.  
5 - The Total Table 3+ (21 compounds) mass discharge value for this sample does not include PFPrA because it was not analyzed for PFPrA.  
6 - Total flow volume is determined based on measurements taken over the sample collection period.  
7 - For samples with a duration of zero (0) hours, i.e., grab samples, the instantaneous flow rate was used to calculate the mass discharge.

-- - not applicable

ft<sup>3</sup>/s - cubic feet per second

MG - million gallons

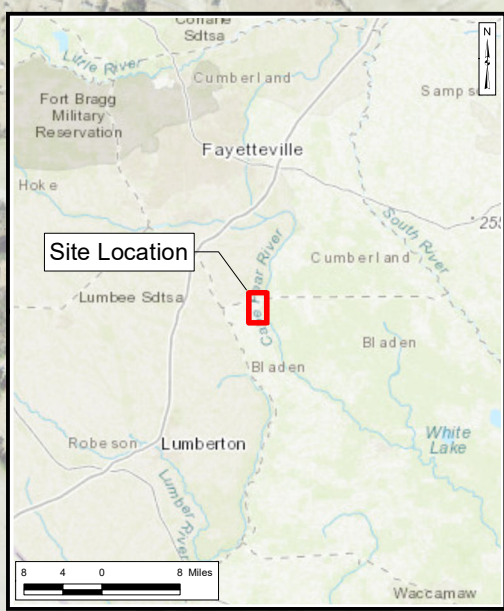
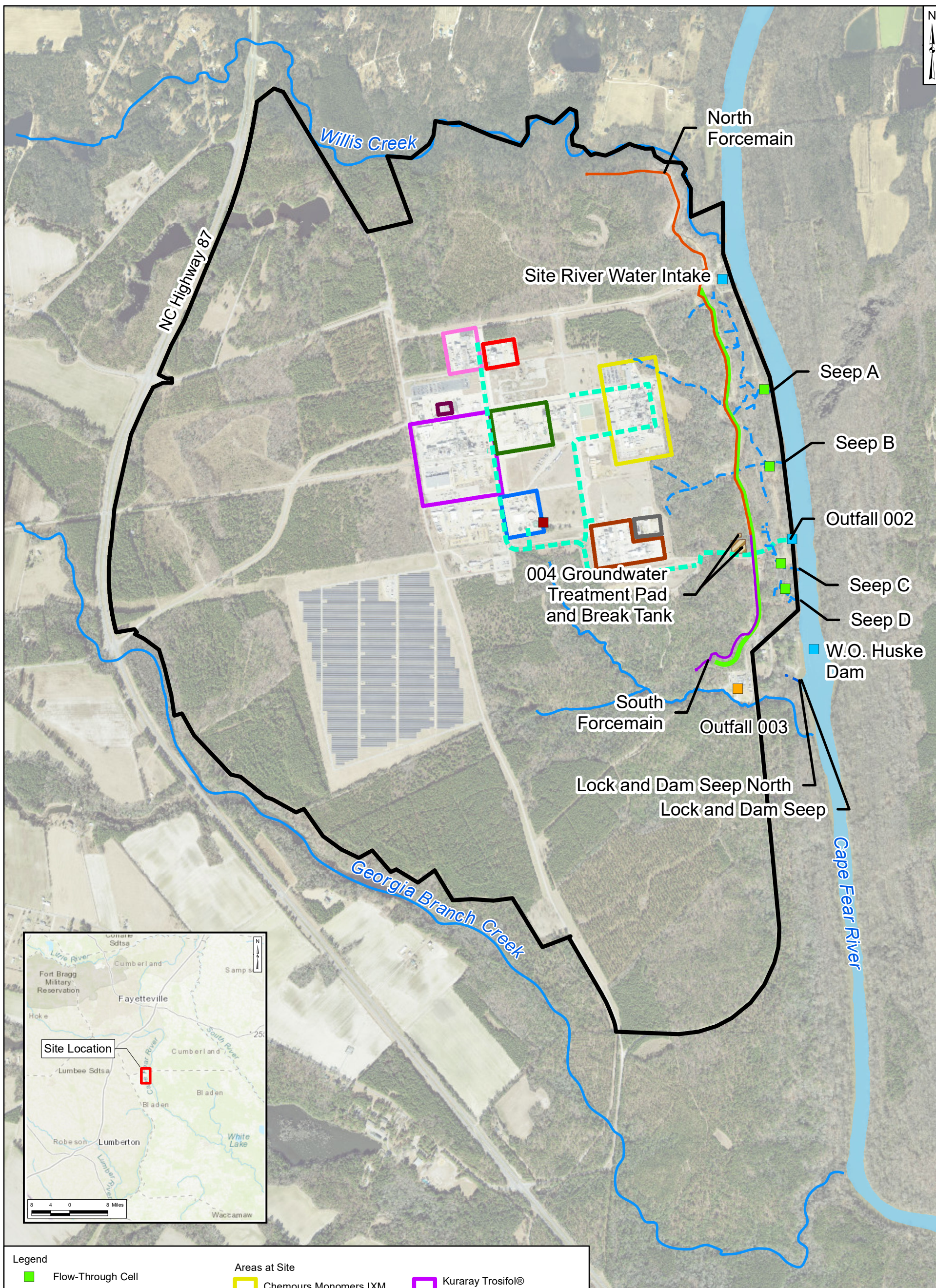
mg/s - milligrams per second

ng/L - nanograms per liter



# Figures





<b>Legend</b>	<b>Areas at Site</b>	
<span style="color: green;">■</span> Flow-Through Cell	<span style="border: 2px solid yellow;">□</span> Chemours Monomers IXM	<span style="border: 2px solid purple;">□</span> Kuraray Trosifol® Leased Area
<span style="color: orange;">■</span> Outfall 003 Treatment System	<span style="border: 2px solid red;">□</span> Chemours Polymer Processing Aid Area	<span style="border: 2px solid blue;">□</span> Wastewater Treatment Plant
<span style="color: red;">■</span> Stormwater Treatment System	<span style="border: 2px solid brown;">□</span> DuPont Polyvinyl Fluoride Leased Area	<span style="border: 2px solid green;">□</span> Power - Filtered and Demineralized Water Production
<span style="color: blue;">■</span> Site Features	<span style="border: 2px solid grey;">□</span> Former DuPont PMDF Area	<span style="border: 2px solid purple;">□</span> Kuraray Laboratory
<span style="border-bottom: 2px solid black;"> </span> Site Boundary	<span style="border: 2px solid pink;">□</span> Kuraray SentryGlas® Leased Area	
<span style="color: blue;">—</span> Nearby Tributary		
<span style="color: blue;">- - -</span> Observed Seep (Natural Drainage)		
<span style="color: cyan;">- - -</span> Site Conveyance Network		
<span style="color: orange;">—</span> North Forcemain		
<span style="color: purple;">—</span> South Forcemain		
<span style="color: green;">—</span> Barrier Wall		
<span style="border: 1px solid orange; background-color: orange;">□</span> Groundwater Treatment Pad		

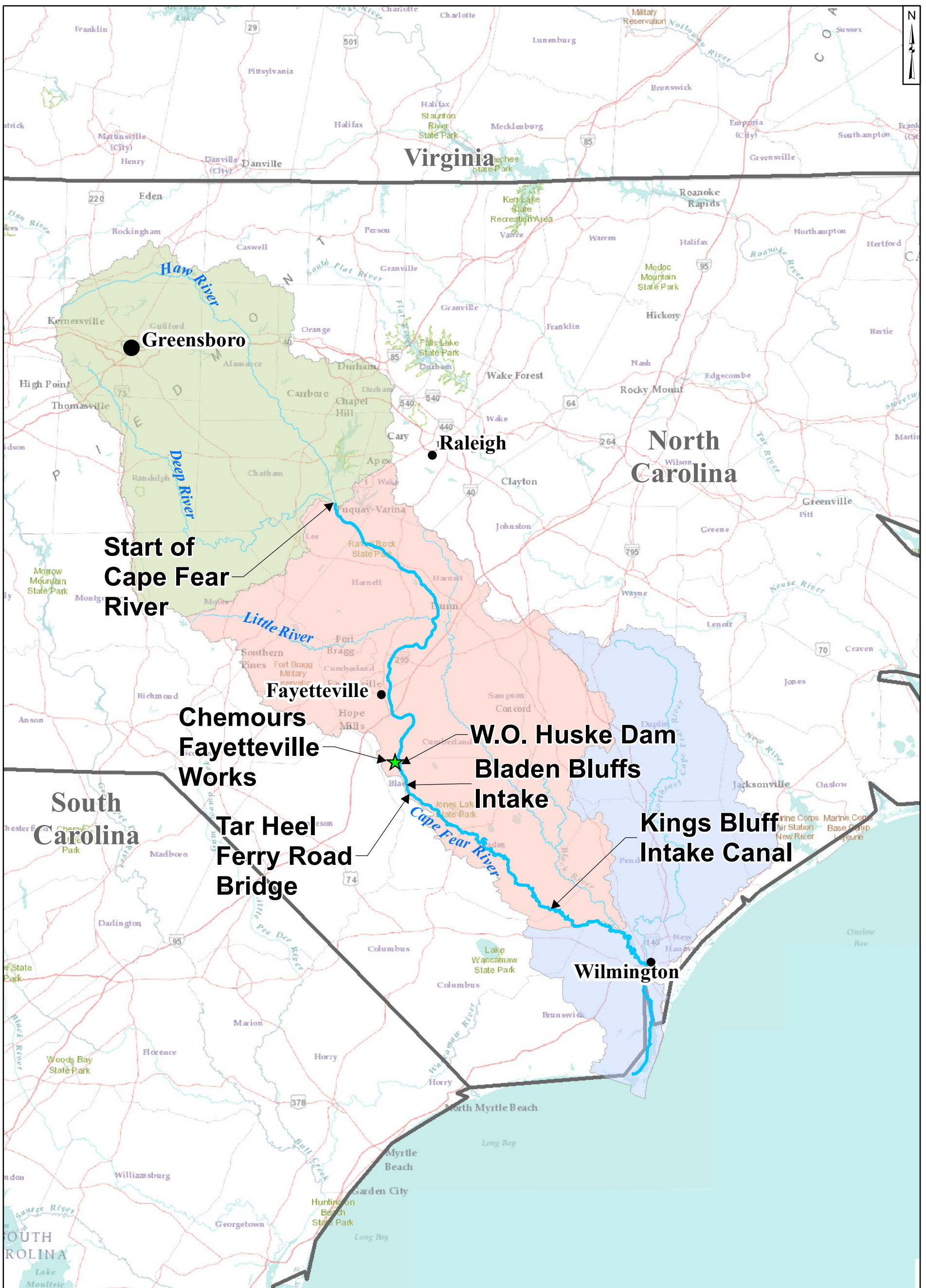
**Notes:**  
 1. The outline of Cape Fear River is approximate and is based on open data from ArcGIS Online and North Carolina Department of Environmental Quality Online GIS (MajorHydro shapefile).  
 2. Basemap sources: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

1,000 500 0 1,000 Feet

**Site Location Map**  
 Chemours Fayetteville Works, North Carolina

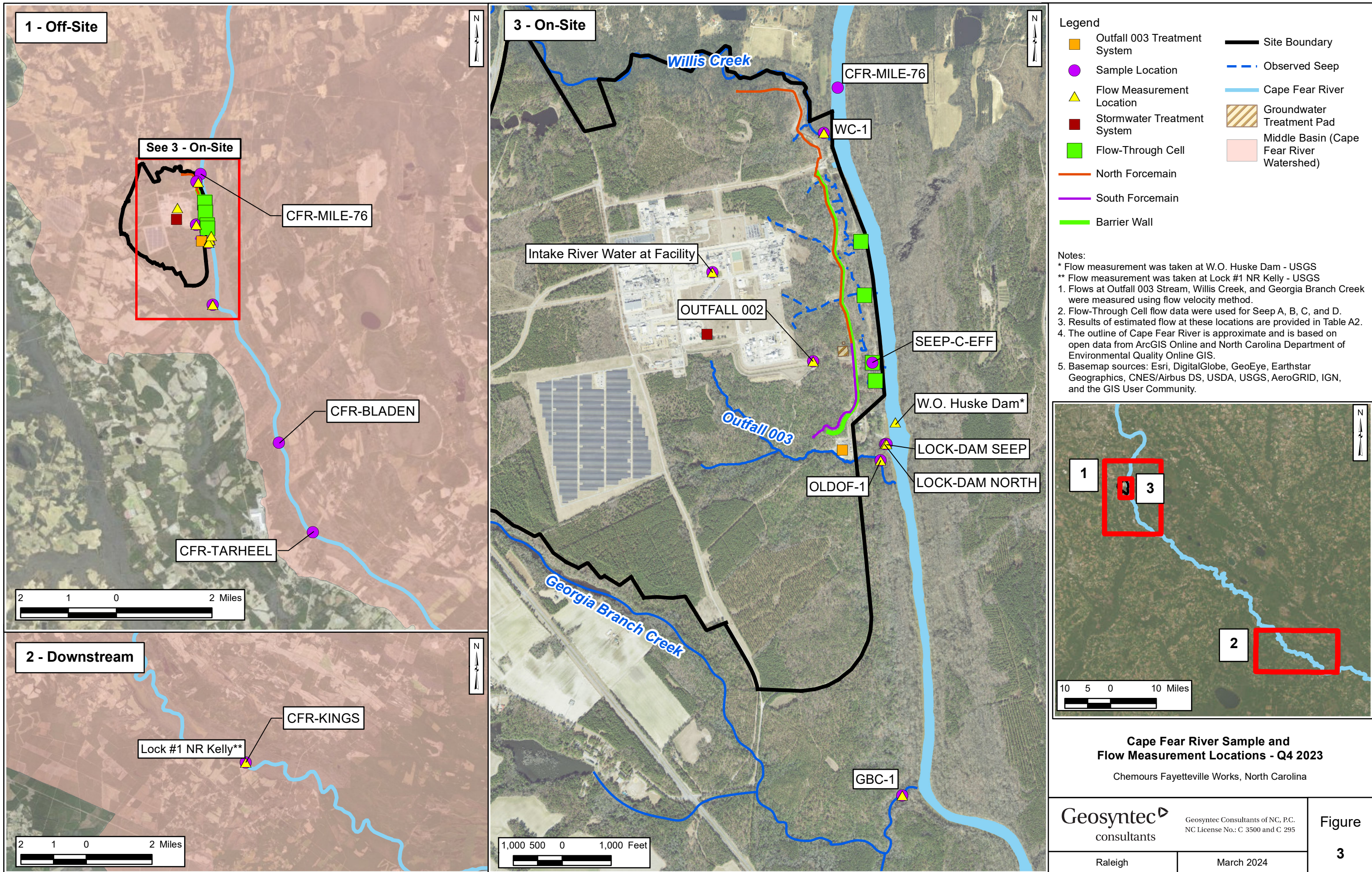
<p><b>Geosyntec</b>                  consultants</p>	<p>Geosyntec Consultants of NC, P.C.                  NC License No.: C 3500 and C 295</p>	<p><b>Figure</b>  <b>1</b></p>
<p>Raleigh</p>	<p>March 2024</p>	



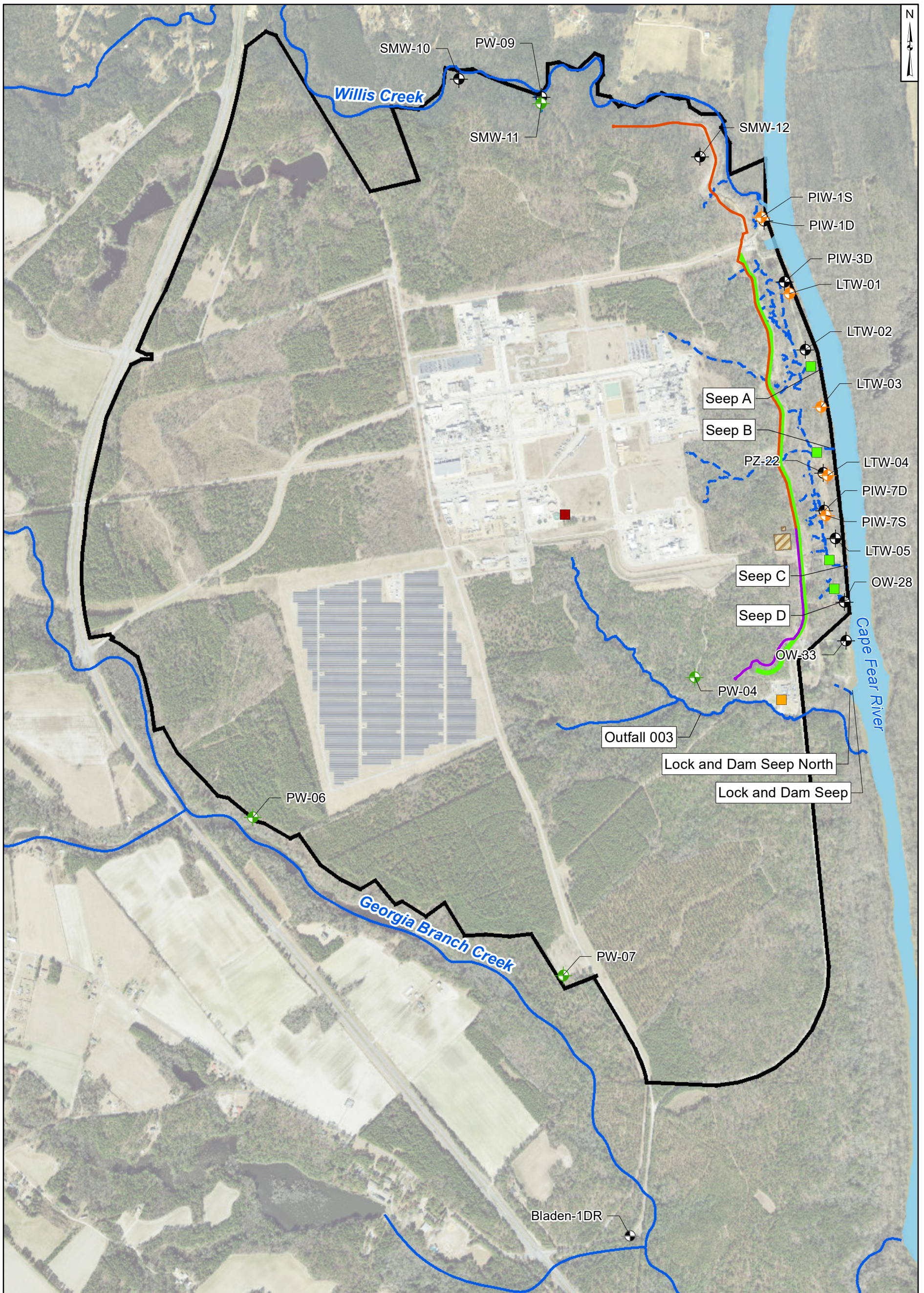


<p><b>Legend</b></p> <ul style="list-style-type: none"> <li><span style="color: green;">★</span> Chemours Fayetteville Works</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #c8e6c9; border: 1px solid black; margin-right: 5px;"></span> Upper Basin</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #ffe0b2; border: 1px solid black; margin-right: 5px;"></span> Middle Basin</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #bbdefb; border: 1px solid black; margin-right: 5px;"></span> Lower Basin</li> </ul> <p><b>Note:</b>                  Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.</p>	<p>20 10 0 20 Miles</p>	
<p><b>Cape Fear River Watershed and Downstream Drinking Water Intakes</b>                  Chemours Fayetteville Works, North Carolina</p>		
<p><b>Geosyntec</b>                  consultants</p>	<p>Geosyntec Consultants of NC, P.C.                  NC License No.: C 3500 and C 295</p>	<p><b>Figure</b>  <b>2</b></p>
<p>Raleigh</p>	<p>March 2024</p>	









**Legend**

- |                                     |                              |                  |  |
|-------------------------------------|------------------------------|------------------|--|
| Surficial Aquifer Monitoring Well   | Flow-Through Cell            | Observed Seep    | North Forcemain                          |
| Floodplain Deposits Monitoring Well | Outfall 003 Treatment System | Nearby Tributary | South Forcemain                          |
| Black Creek Aquifer Monitoring Well | Stormwater Treatment System  | Site Boundary    | Barrier Wall                             |
|                                     |                              |                  | Groundwater Treatment Pad and Break Tank |

**Notes:**

1. Bladen-1D has been abandoned and replaced with Bladen-1DR during Q1 2023.
2. Due to the scale of the map, pairs of wells that are in close proximity have been offset for visibility. Therefore, the placement of these wells on this map do not reflect their true geographic coordinates.
3. The outline of Cape Fear River is approximate and is based on open data from ArcGIS Online and North Carolina Department of Environmental Quality Online GIS.
4. Basemap source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

1,000 500 0 1,000 Feet



**Groundwater Wells for Mass Loading Assessment**

Chemours Fayetteville Works, North Carolina

**Geosyntec**  
consultants

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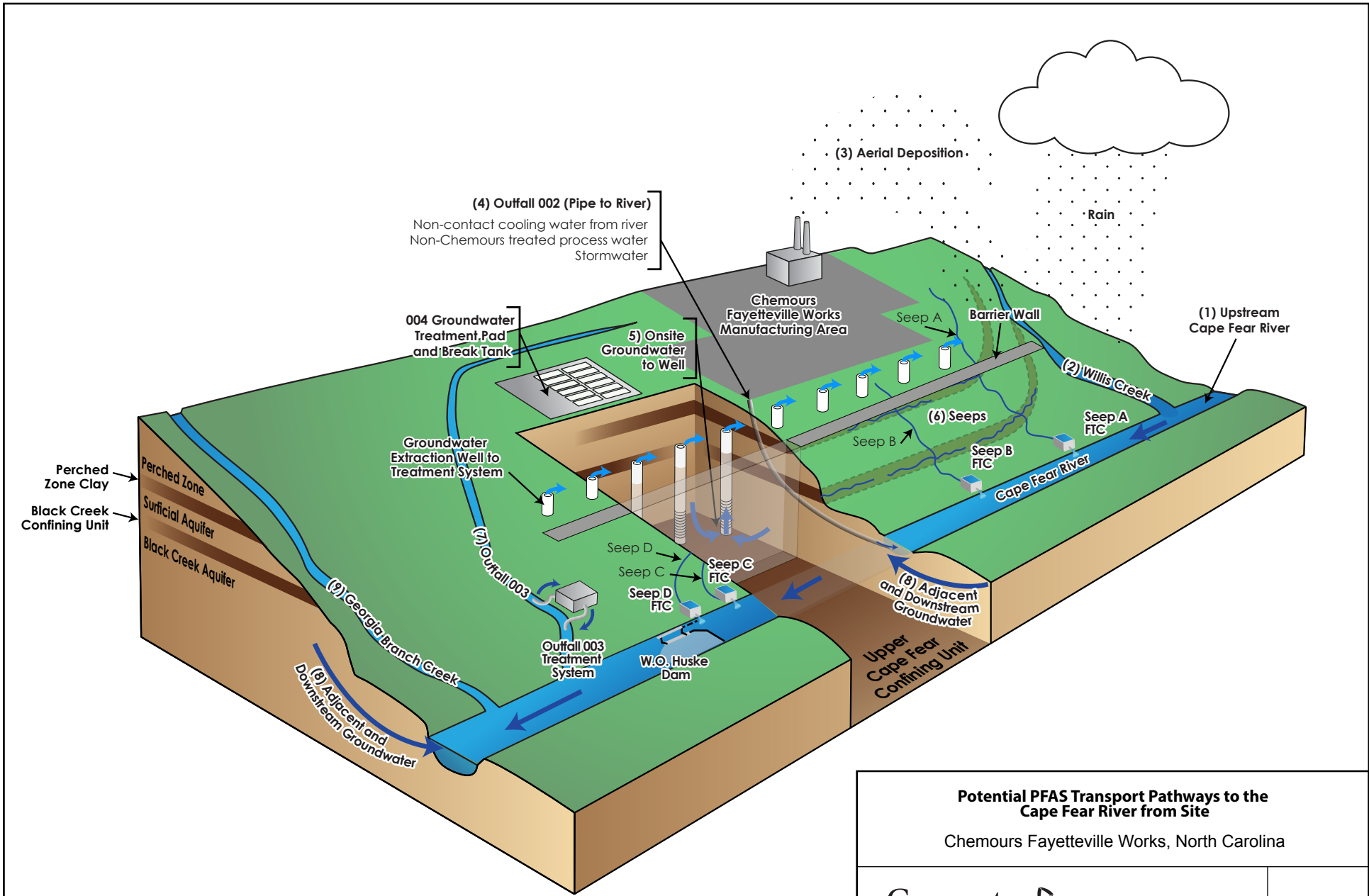
**Figure**

Raleigh

March 2024

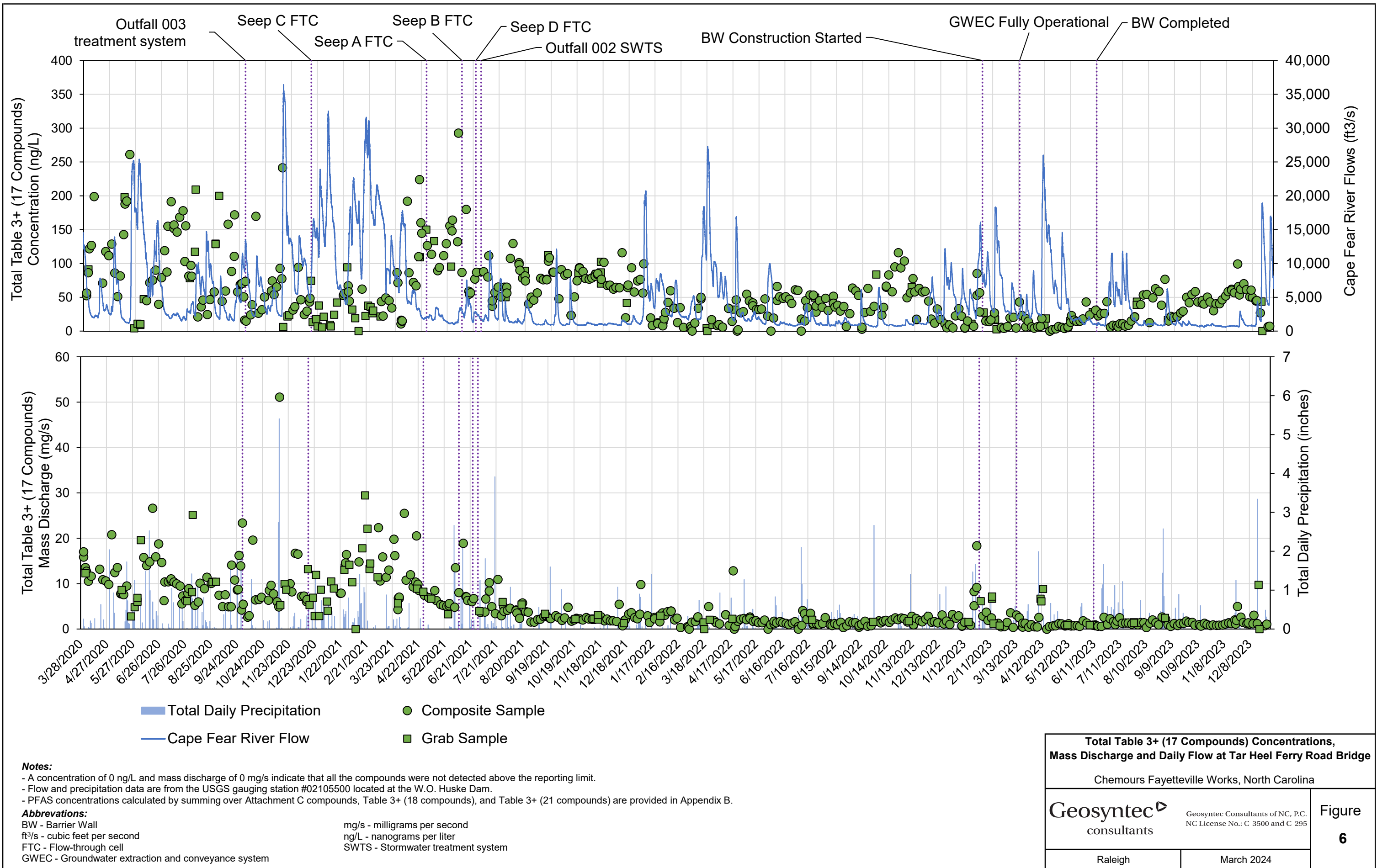
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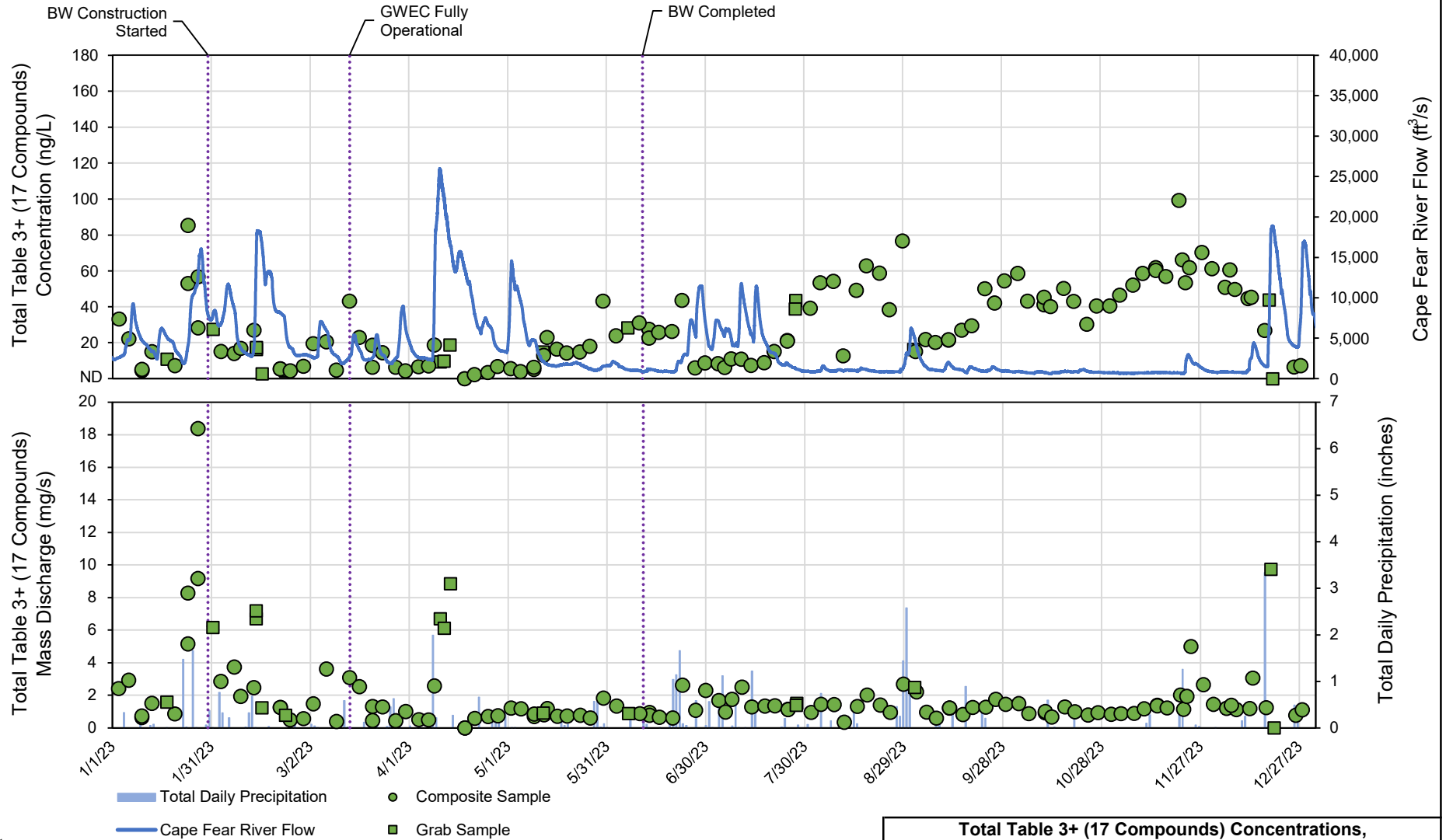




Note:  
FTC - Flow-through cell  
Image is conceptual and is not to scale

<b>Potential PFAS Transport Pathways to the Cape Fear River from Site</b>	
Chemours Fayetteville Works, North Carolina	
	Geosyntec Consultants of NC, P.C. NC License No.: C 3500 and C 295
	March 2024
Raleigh, NC	<b>Figure 5</b>





**Notes:**

- A concentration of 0 ng/L and mass discharge of 0 mg/s indicate that all the compounds were not detected above the reporting limit.
- PFAS concentrations calculated by summing over Attachment C compounds, Table 3+ (18 compounds), and Table 3+ (21 compounds) are provided in Appendix B.
- Flow and precipitation data are from the USGS gauging station #02105500 located at the W.O. Huske Dam.

**Abbreviations:**

- BW - Barrier Wall
- ft<sup>3</sup>/s - cubic feet per second
- GWEC - Groundwater extraction and conveyance system
- mg/s - milligrams per second
- ND - not detected above the detection limit
- ng/L - nanograms per liter

**Total Table 3+ (17 Compounds) Concentrations, Mass Discharge and Daily Flow at Tar Heel Ferry Road Bridge (Previous 12 Months)**  
Chemours Fayetteville Works, North Carolina

**Geosyntec**  
consultants

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Figure

7

Raleigh

March 2024