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CAPE FEAR RIVER PFAS MASS LOADING ASSESSMENT - SECOND QUARTER 2020 REPORT

Chemours Fayetteville Works

Prepared for

The Chemours Company FC, LLC
22828 NC Highway 87
Fayetteville, NC 28306

Prepared by

Geosyntec Consultants of NC, PC
2501 Blue Ridge Road, Suite 430
Raleigh, NC 27607

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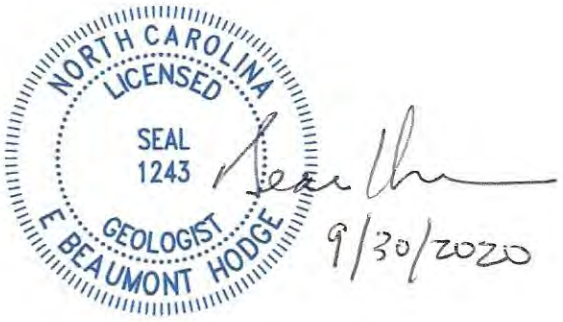


TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

LIST OF ABBREVIATIONS

CAP	Corrective Action Plan
cfs	cubic feet per second
CO	Consent Order
CO Addendum	Addendum to Consent Order Paragraph 12
CSM	Conceptual Site Model
DQO	Data Quality Objectives
DVM	Data Verification Module
EIM	Environmental Information Management
GPM	gallons per minute
HFPO-DA	hexafluoropropylene oxide dimer acid
kg	kilograms
L/s	liters per second
L^3T^{-1}	volume per time
m^3	million cubic meters
m^3/s	cubic meters per second
mg/s	milligrams per second
ML^{-3}	mass per unit volume
MLM	Mass Loading Model
MT^{-1}	mass per unit time
ng/L	nanograms per liter
NCDEQ	North Carolina Department of Environmental Quality
ORP	Oxidation Reduction Potential
PFAS	per- and polyfluoroalkyl substances
PFMOAA	perfluoro-2-methoxyaceticacid
PFO2HxA	perfluoro(3,5-dioxahexanoic) acid
PFO3OA	perfluoro(3,5,7-trioxaoctanoic) acid
PMPA	perfluoromethoxypropyl carboxylic acid
QA/QC	quality assurance/quality control
Q1 2020	first quarter 2020

Q2 2020	second quarter 2020
RPD	relative percent difference
SOP	standard operating procedure
USGS	United States Geological Survey

1 INTRODUCTION AND OBJECTIVES

Geosyntec Consultants of NC, P.C. (Geosyntec) has prepared this Cape Fear River PFAS Mass Loading Assessment report for The Chemours Company, FC, LLC (Chemours). Chemours operates the Fayetteville Works facility in Bladen County, North Carolina (the Site). This report provides monitoring and assessment results pursuant to the requirements of Paragraph 1(b) of the Addendum to Consent Order Paragraph 12 (CO Addendum) and Paragraph 16 of the executed Consent Order (CO) dated 25 February 2019 among the North Carolina Department of Environmental Quality (NCDEQ), Cape Fear River Watch, and Chemours.

The purpose of this report is to describe the second quarter 2020 (Q2 2020) PFAS Mass Loading Assessment of the Cape Fear River based on the findings of surface water, river water, and groundwater samples collected at and surrounding the Site. Data collected were used to assess mass loading of Total per- and polyfluoroalkyl substances (PFAS) to the Cape Fear River. Total PFAS is a term used to refer to PFAS detected in the environment for those PFAS compounds listed in Table 1 and analyzed by the Table 3+ standard operating procedure (SOP) analytical method.

There are two primary objectives for this report:

1. To assess Cape Fear River PFAS mass loads. Specifically:
    a. Mass loads measured in the Cape Fear River;
    b. Mass loads prevented from reaching the Cape Fear River by implemented remedies; and
    c. The total mass load that was heading to the Cape Fear River, i.e., the sum of the two quantities above.
2. To assess the relative PFAS loadings from the different PFAS transport pathways to the Cape Fear River during the reporting period using the Mass Loading Model (MLM).

This report contains data through June 2020, and mass loading calculations and reporting are done on the set of Table 3+ PFAS compounds listed in Table 1, i.e., under the "Table 3+" groupings. The CO Addendum requires sampling the Cape Fear River for PFAS compounds listed in Attachment C of the CO (Cape Fear River Mass Loading Calculation Protocol, Geosyntec 2020c). The next quarterly report (Q3 2020) will contain data collected July 2020 through September 2020 and will include mass loading reported for Attachment C PFAS.

The remainder of this report is organized as follows:

- **Scope** – This section describes the sampling programs performed in Q2 2020;
- **Sampling Results** – This section describes the results of the sampling activities;
- **PFAS Mass Load to Cape Fear River** – This section describes the assessments of Cape Fear River PFAS Mass Loads;
- **Cape Fear River PFAS Mass Loading Model** – This section describes the assessment of the relative mass loading from the various PFAS transport pathways;
- **Summary** – This section summarizes the findings of this report.

2 SCOPE

The Q2 2020 sampling events were completed by Geosyntec and Parsons of NC (Parsons) between May and June 2020 (Q1 2020 contained data from January through April 2020). The scope of the sampling programs is summarized below and complete descriptions of the field methods can be found in Appendix A.

2.1 Sampling Activities in Q2 2020

Q2 2020 sampling activities included:

1. The Cape Fear River PFAS Mass Load Sampling Program consisted of collecting twice weekly composite samples at CFR-TARHEEL (May 2020 to present); and
2. The Cape Fear River PFAS Mass Loading Model Sampling Program event which consisted of the following:
    a. Collecting a synoptic round of groundwater elevations from select on and offsite monitoring wells (May 2020);
    b. Collecting water samples for PFAS from 20 onsite and offsite monitoring wells (May 2020);
    c. Collecting seep, surface water, and river water samples for PFAS (May 2020); and
    d. Measuring flow rates at specified seep and surface water locations (May 2020).

Each program is described in further detail below.

2.2 Cape Fear River PFAS Mass Load Sampling Program

The Cape Fear River PFAS Mass Load program consists of collecting twice weekly composite samples from the sampling location at Cape Fear River at Tar Heel Ferry Road Bridge (CFR-TARHEEL), approximately 7 miles downstream of the Site (Figure 2). This location is far enough downstream of the Site such that water from the seeps, onsite groundwater, Old Outfall 002 and Georgia Branch Creek are well mixed in the river.

Composite samples were collected using an autosampler and were generally composited over 84 hours with aliquots collected at one-hour intervals yielding two samples per week (i.e., week is 168 hours long = two times 84 hours). Collected samples were evaluated for the PFAS compounds listed in Table 1. Details on sample collection methods are described in Appendix A.

Interruptions to the sampling program may occur due to events such as vandalism, equipment malfunction or a high river stage, which will flood the platform and necessitates sampler removal. During interruptions, field protocol is to collect a grab sample from the river twice per week at the CFR-TARHEEL location to continue establishing a record of river concentrations over time. During the reporting period between May 9, 2020 and June 29, 2020, one interruption occurred in the scheduled sampling program:

- May 20, 2020 to June 8, 2020 – High river stage was experienced at the sampling location between these dates necessitating the removal of the autosampler to prevent damage. This event resulted in no sample collection during the period of May 20, 2020 to June 8, 2020.

The data collected from the PFAS Mass Load Sampling Program were used to estimate PFAS mass load in the Cape Fear River using concentrations from the CFR-TARHEEL location and flows as reported by the United States Geological Survey (USGS) river gauging station at the W.O. Huske Dam (Figure 2). Details of the calculation methods were reported in the *Cape Fear River PFAS Mass Loading Calculation Protocol* (Geosyntec, 2020c) and are provided in Appendix G. Results of these sampling activities are described below in Sections 3 and Section 4.

2.3 Cape Fear River PFAS Mass Loading Model Sampling Program

The quarterly Mass Loading Model Sampling Program consisted of collecting concentration and flow data from the various PFAS transport pathways in May 2020. Environmental media sampled include surface water (seeps, creeks, Old Outfall, Outfall 002, and Cape Fear River) and groundwater. Surface and river water sampling and flow gauging locations for the Q2 2020 Event are shown on Figures 4 and 5 and listed in Table 2. Groundwater sampling locations for the Q2 2020 Event are listed in Table 3 and shown

on Figure 6. Collected samples were evaluated for the PFAS compounds listed in Table 1. Details on sample collection and flow gauging methods are described in Appendix A.

The data collected from these Q2 2020 field activities were then incorporated into the Mass Loading Model to estimate PFAS mass discharge from the nine potential transport pathways to the Cape Fear River (Figure 3), as identified in the Conceptual Site Model (CSM) (Geosyntec, 2019b) and discussed in more detail in Section 5. These Mass Loading Model estimates were compared to mass loading observed downstream at CFR-TARHEEL.

Grab samples were also collected from the Cape Fear River adjacent to the Bladen Bluffs and Kings Bluff Intakes at CFR-BLADEN and CFR-KINGS, respectively (Figure 2). Samples were analyzed for PFAS listed in Table 1. To calculate the mass discharge at these sample locations, flows as reported by the USGS river gauging station at the W.O. Huske Dam and Cape Fear River Lock & Dam #1 were used to determine river flow volumes corresponding to samples collected at CFR-BLADEN and CFR-KINGS, respectively. PFAS concentrations and mass discharge calculations are reported in Section 4.3.

2.4 Laboratory Analyses

Samples were analyzed for PFAS by Table 3+ Laboratory SOP and some samples were analyzed for Method EPA 537 Modified. The focus of this report is on the set of PFAS originating from manufacturing activities at the Site; therefore, results of sampling activities and assessments of mass loading were performed and presented with respect to the PFAS groupings presented in Table 1: (i) Table 3+ (17 compounds) and (ii) Table 3+ (20 compounds). Analytical results of other PFAS, i.e., those analyzed under Method EPA 537 Modified, with the exception of hexafluoropropylene oxide dimer acid (HFPO-DA), are provided in Appendix D.

3 SAMPLING RESULTS

This section presents sampling results from Q2 2020 sampling activities described in Section 2. Specifically, this section describes data quality presented in this report and then describes the results from the Cape Fear River PFAS Mass Load sampling program and the Cape Fear River PFAS Mass Loading Model sampling programs.

3.1 Data Quality

All analytical data were reviewed using the Data Verification Module (DVM) within the Locus™ Environmental Information Management (EIM) system, a commercial software program used to manage data. Following the DVM process, a manual review of the data

was conducted. The DVM and the manual review results were combined in a data review narrative report for each set of sample results, which were consistent with Stage 2b of the USEPA Guidance for Labeling Externally Validated Laboratory Analytical Data for Superfund Use (USEPA-540-R-08-005, 2009). The narrative report summarizes which samples were qualified (if any), the specific reasons for the qualification, and any potential bias in reported results. The data usability, in view of the project's data quality objectives (DQOs), was assessed, and the data were entered into the EIM system.

The data were evaluated by the DVM against the following data usability checks:

- Hold time criteria;
- Field and laboratory blank contamination;
- Completeness of quality assurance/quality control samples;
- Matrix spike/matrix spike duplicate recoveries and the relative percent differences (RPDs) between these spikes;
- Laboratory control sample/control sample duplicate recoveries and the RPD between these spikes;
- Surrogate spike recoveries for organic analyses; and
- RPD between field duplicate sample pairs.

A manual review of the data was also conducted and includes instrument-related quality control results for calibration standards, blanks, and recoveries. The data review process (DVM plus manual review) applied the following data evaluation qualifiers to the analytical results as required:

- J Analyte present, reported value may not be accurate or precise;
- UJ Analyte not present below the reporting limit, reporting limit may not be accurate or precise; and
- B Analyte present in a blank sample, reported value may have a high bias.

The data review process described above was performed for all laboratory chemical analytical data generated for the sampling event. The DQOs were met for the analytical results for accuracy and precision. The data collected are believed to be complete, representative and comparable, with the exception of R-PSDA, Hydrolyzed PSDA, and R-EVE.

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 these 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 are calculated and presented two ways in this report: (i) summing over 17 of the 20 Table 3+ compounds "Total Table 3+ (sum of 17 compounds)", i.e., excluding results of R-PSDA, Hydrolyzed PSDA, and R-EVE, and (ii) summing over 20 of the Table 3+ compounds "Total Table 3+ (sum of 20 compounds)". Expressing these data as a range represents possible values of what these results might be without matrix interferences. In other words, the sum of all 17 compounds is an underestimate of the actual value while the sum of the 20 compounds is likely an overestimate of the total actual value.

3.2 Cape Fear River PFAS Mass Load Sampling Results

For this Q2 2020 report, the Cape Fear River Mass Loads reporting period was from May 9 to June 29, 2020. During this period, twelve (12) primary composite samples, five (5) grab samples, and one duplicate grab sample were collected at location CFR-TARHEEL.

3.2.1 Cape Fear River Mass Load QA/QC Samples

PFAS concentrations for Cape Fear River Mass Loading quality assurance/quality control (QA/QC) samples are reported in Table 7. Two equipment blanks and field blanks were collected on May 25, 2020 and June 1, 2020. The equipment blanks and field blanks did not have PFAS detected above the associated reported limits, with the exception of PFO4DA in the equipment blank collected on June 1, 2020 (CFR-TARHEEL-EB-060120). This PFO4DA detection did not result in additional data qualification. One duplicate sample was collected on June 1, 2020. PFAS results for the parent (CFR-TARHEEL-060120) and duplicate sample (CFR-TARHEEL-060120-D) had relative percent differences less than 30% for the reported compounds.

3.2.2 Cape Fear River Mass Load PFAS Analytical Results

Analytical sample results used to estimate Cape Fear River mass loads are reported in Table 7. Minimum and maximum Total PFAS concentrations for each of the two PFAS groupings are as follows:

- Total Table 3+ (17 compounds) concentrations ranged from 4.2 nanograms per liter (ng/L) (CFR-TARHEEL-052520) to 261 ng/L (CFR-TARHEEL-83-052020); and
- Total Table 3+ (17 compounds) concentrations ranged from 9.6 ng/L (CFR-TARHEEL-052520) to 340 ng/L (CFR-TARHEEL-83-052020).

The concentrations over time for these samples are plotted on Figure 8 and corresponding calculated mass loads are reported in Tables 11 and 12 and plotted in Figure 9. Both figures are described in Section 4.

3.3 PFAS Mass Loading Model Sampling Seep and Surface Water Results

For this Q2 2020 report, sampling of seep, surface water and Cape Fear River locations occurred between May 13 and 14, with the exception of CFR-KINGS, which occurred on May 19, 2020. The CFR-KINGS sample was sampled five days later to account for the estimated time for water to travel from the Site to the Kings Bluff Intake. During this period, eight (8) composite samples, six (6) grab samples, and one duplicate sample were collected.

Onsite rain gauges did not indicate any precipitation during the week of surface water sample collection (May 13 to 19, 2020). The last significant precipitation event was measured at the Site on May 6, 2020 (0.82 inches). The May 2020 surface water sampling event is, therefore, considered to be a quiescent (*dry*) weather event for the purposes of the Mass Loading Model.

3.3.1 Seep and Surface Water QA/QC Samples

PFAS concentrations for surface water QA/QC samples are reported in Table 8. Two equipment blanks (May 19 and 21, 2020) and one field blank (May 19, 2020) were collected. The equipment blank collected on May 21, had one PFAS compound (PS Acid) detected above the associated reported limits. The field blank collected on May 19, 2020 had one PFAS compound (perfluoro-2-methoxyaceticacid [PFMOAA]) detected above the associated reported limits. Neither detections resulted in additional data qualification. One field duplicate was collected; relative percent differences for the reported compounds were all less than 30%; therefore, no additional data qualification was required.

3.3.2 Seeps and Surface Flow Gauging

A summary of flow rates measured for the May 2020 seep and surface water event is presented in Table 9. Details on estimated flow measurements along with measurement methods at each flow gauging location are included in Appendix C.

Measured flow rates for Willis Creek and Georgia Branch Creek in May 2020 were 3,500 and 5,300 gallons per minute (GPM). Measured flow rates at the seeps were 170, 150, 49 and 150 GPM for Seep A, B, C and D, respectively. The flow rate at Outfall 002 was 15,000 GPM while Old Outfall 002 had a flow rate of 620 GPM. The USGS reported flow at W.O. Huske Dame (USGS 02105500) ranged from 600,000 GPM on May 18, 2020) to 760,000 GPM on May 13, 2020. The USGS reported flow at Kings Bluff (USGS 02105769) was 740,000 GPM.

3.3.3 Seeps and Surface Water Field Parameters

Field parameters recorded for surface water samples collected during the Q2 2020 event are presented in Table 5 and the field forms are provided in Appendix D. Recorded field parameter data are generally consistent with expectations.

3.3.4 Seep and Surface Water PFAS Analytical Results

Analytical results for the seep, surface, and river water samples are summarized in Table 8. Figures 10A, 10B, 11A, and 11B show the Total PFAS concentrations reported for samples collected in May 2020 and Figure 12 presents the HFPO-DA concentration for Cape Fear River samples. Laboratory and DVM reports are included in Appendix E.

In general, Total PFAS concentrations were lowest at Outfall 002 and in the upstream and downstream river samples and the highest at the seeps and the Old Outfall 002 (Figures 10A through 11B; Table 8). Among the river samples, the sample collected from CFR-MILE-76 (before site) had the lowest detections of PFAS with Total PFAS concentrations ranging from 33 ng/L to 61 ng/L across the two Total PFAS groupings. Among the creeks, Willis Creek had higher Total PFAS concentrations than Georgia Branch Creek with Total PFAS concentrations ranging from 2,600 ng/L to 3,100 ng/L across the two Total PFAS groupings. Among the seeps and Old Outfall 002, Seep C had the highest Total PFAS concentrations of 340,000 to 350,000 ng/L across the two Total PFAS groupings.

Figure 12 shows the HFPO-DA concentrations in the four river samples. HFPO-DA concentrations were well below 140 ng/L ranging from 2 ng/L (upstream at CFR-MILE-76) to 25 ng/L (downstream sample at CFR-BLADEN).

3.4 PFAS Mass Loading Model Sampling Groundwater Results

A synoptic water level survey of the onsite groundwater monitoring well network was completed on May 5, 2020. Field parameters and groundwater samples were collected from 19 of the 20 CO Paragraph 16 wells between May 6 and 14, 2020. This list of groundwater wells is derived from the Corrective Action Plan (CAP) (Geosyntec, 2019c) with the exception of wells INSITU-02 and BLADEN-1S, which were removed as these wells are perennially dry. One of the wells (PIW-1S) was dry and not sampled in Q2 2020 but will continue to be sampled in future sampling events if groundwater is present.

3.4.1 Groundwater QA/QC Samples

PFAS concentrations for groundwater QA/QC samples are reported in Table 10. The following observations were noted for the QA/QC samples:

- Eight equipment blank samples were collected over the 9 sampling days. No PFAS were detected above the associated reporting limits in seven of the eight equipment blank samples. The Equipment blank collected on May 7, 2020 had reportable levels of PFMOAA, perfluoro(3,5-dioxahexanoic) acid (PFO2HxA), perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA), and HFPO-DA. Samples collected on May 7, 2020, that had concentrations of PFMOAA, PFO2HxA, PFO3OA and HFPO-DA within 5x the level found in the equipment blank sample were B qualified to indicate the presence of the analyte in the associated equipment blank sample.
- Six field blank samples were collected over the 9 sampling days. No PFAS were detected above the associated reporting limits in any of the field blank samples.
- One field duplicate sample was collected at Bladen-1D. The relative percent differences for the reported compounds were less than 30% between the parent and field duplicate samples; therefore, no additional data qualification was required.

3.4.2 Water Levels

Groundwater elevations were calculated for onsite and offsite wells screened in the Perched Zone, Surficial Aquifer and Black Creek Aquifer from a single synoptic water level measurement survey performed on May 5, 2020 (Table 4). Groundwater elevations from these synoptic water levels were used to develop potentiometric maps for the Perched Zone, Surficial Aquifer and Black Creek Aquifer (Figures 7A, 7B, and 7C).

Similar to Perched Zone groundwater elevations discussed in previous assessments (Geosyntec, 2019b; Geosyntec, 2020b), a localized groundwater mound is observed near NAF-01 and NAF-04 (Figure 7A). Groundwater elevations infer groundwater will flow radially away from the groundwater mound. Groundwater in the Perched Zone appears to be controlled by topography and the lateral extent of the clay lens. Perched Zone groundwater elevations are also shown to overlay with topographic contours and individual seeps that were identified in the *Seeps and Creeks Investigation* (Geosyntec, 2019a; Figure 7A).

Groundwater elevations in Surficial Aquifer wells (Figure 7B) indicate groundwater flow in the northern portion of the Site is likely to be east-northeast towards both Willis Creek and Cape Fear River, and at the southern end of the Site towards Old Outfall 002, consistent with the flow observed in in previous assessments (Geosyntec, 2019b; Geosyntec, 2020b). In the southern portion of the Site the Surficial Aquifer groundwater discharges to the Old Outfall 002 and to Seep B.

Groundwater in the Black Creek Aquifer flows in a predominantly easterly direction to the Cape Fear River (Figure 7C) similar to groundwater elevations discussed in previous assessments (Geosyntec, 2019b; Geosyntec, 2020b). Minor groundwater flow components to the northeast, towards Willis Creek (near SMW-12) and southeast, towards Old Outfall (east of PW-11 or Glengerry Road) are also likely. Additionally, based on present lithology characterization, the Black Creek Aquifer is likely in direct connection with only a portion of Willis Creek, from SMW-12 to the river, and a section of the Old Outfall in its lower reaches near the Cape Fear River. The contours drawn from the groundwater elevations were used to estimate hydraulic gradients in the Black Creek Aquifer. The hydraulic gradients were used as an input into the Mass Loading Model to estimate the contribution of onsite groundwater in the Black Creek Aquifer to the PFAS mass loading to the Cape Fear River. The details of the calculations can be found in Appendix F.

3.4.3 Groundwater Field Parameters

Field parameters recorded for groundwater samples collected during the Q2 2020 event are presented in Table 6 and the field forms are provided in Appendix D. Recorded field parameter data are generally in line with expectations for the sample locations with the following exceptions:

- Oxidation Reduction Potential (ORP) at PIW-7S was not recorded because of values outside of equipment capabilities;
- Dissolved oxygen at PW-11 was not recorded because of values outside of instrument capabilities; and
- Specific conductance at PW-09, SMW-10 and SMW-11 was not recorded because of values outside of instrument capabilities.

3.4.4 Groundwater PFAS Analytical Results

PFAS and Total PFAS concentrations for the groundwater samples collected in May 2020 are summarized in Table 10 and Figures 13A and 13B. Laboratory and DVM reports are included in Appendix E. Minimum and maximum Total PFAS concentrations for each of the two Total PFAS groupings were the same and ranged from 36 ng/L (PW-09) to 290,000 ng/L (LTW-05) with the highest concentrations observed at wells located near the seeps and at the mouth of Old Outfall 002 (Figures 13A and 13B).

In general, the largest proportion of Total PFAS concentrations are comprised of HFPO-DA, PFMOAA, and perfluoromethoxypropyl carboxylic acid (PMPA) (Table 10). On an aquifer basis, lower individual and Total PFAS concentrations are observed in wells screened in the Surficial Aquifer. Concentrations of Total PFAS in Floodplain deposits and Black Creek Aquifer groundwater (Figures 13A through 13B) were similar to the

seep concentrations (Figures 10A through 10C). Overall, results from the Q2 2020 monitoring are consistent with trends observed at these wells in previous monitoring events (Geosyntec, 2019b; Geosyntec, 2020b).

The results from the Q2 2020 groundwater monitoring event were used to calculate the contribution of onsite groundwater in the Black Creek Aquifer to the PFAS mass discharge to the Cape Fear River. The details of the calculations can be found in Appendix F.

4 PFAS MASS LOAD TO CAPE FEAR RIVER

This section presents results of the Cape Fear River PFAS mass loads for the present reporting period of May 9, 2020 to June 29, 2020, a total of 51 days. Specifically, this section discusses three types of mass loads:

1. The total measured in-river PFAS mass load based on time-weighted concentration measurements of PFAS primarily from composite samples of Cape Fear River water and measured Cape Fear River flow volumes at the W.O. Huske Dam that are adjusted for travel times to the downstream monitoring location at the CFR-TARHEEL;
2. The total measured and estimated PFAS mass load captured by remedies implemented by Chemours; this is the load fraction that was prevented from reaching the Cape Fear River; and
3. The total measured PFAS mass load to the Cape Fear River is defined as the sum of the measured in-river loads and the remedy prevented loads. This total mass load may be calculated following Equation 1 below:

Equation 1: Total PFAS Mass Load

$$M_{CFR} = m_{CFR} + m_{Remedies}$$

where,

M_{CFR} = is the Mass Load of PFAS compounds in the Cape Fear River, including the mass load prevented from reaching the Cape Fear River by implemented remedies, measured in kilograms (kg);

m_{CFR} = is the River Mass Load estimated using PFAS concentrations in samples taken in the Cape Fear River downstream of the Site where the river is well mixed and using measured river flow volumes; and

$m_{Remedies}$ = is the Captured Mass Load prevented from reaching the Cape Fear River by remedies implemented by Chemours;

There have been numerous interim and permanent actions taken to limit PFAS reaching the Cape Fear River prior to this baseline period, i.e., air abatement measures (installation of the thermal oxidizer and carbon beds, etc.), grouting of the terracotta pipe, sediment removal from channels, among others, and these may not be captured in this baseline load calculation but should be considered in the overall assessment of PFAS reductions. Calculation methods for each type of mass load are presented in Appendix I and described in more detail in the *Cape Fear River PFAS Mass Loading Calculation Protocol* (Geosyntec, 2020c).

4.1 In-River PFAS Mass Load and Total PFAS Mass Load

The Total PFAS mass load measured in the Cape Fear River for the 51 day long reporting period of May 9, 2020 to June 29, 2020 ranged from 80 kg to 102 kg for the sum of Total Table 3+ PFAS summed over 17 and 20 compounds, respectively (Tables 11 and 12). These in-river total mass loads were estimated based on the sixteen mass loading estimation intervals presented in Table 12. These estimates were distributed over 1.3 million cubic meters (m^3) or 46 billion cubic feet[1] of river water that passed by the CFR-TARHEEL sampling location. During the reporting period the median flow of the river was 261.1 cubic meters per second (m^3/s) or 9,220 cubic feet per second (cfs).

Start Date	End Date	Days	Total Table 3+ (17) Load in Cape Fear River (kg)	Total Table 3+ (17) Remedy Reduction Load (kg)	Total Table 3+ (17) Total Load to Cape Fear River (kg)
03/28/2020	05/09/2020	43	46	0	46
05/09/2020	06/29/2020	51	80	0	80
Total		**94**	**126**	**0**	**126**

The Total PFAS mass discharge calculated for each of the Total PFAS groupings are as follows (Table 13):

- Total Table 3+ (17 compounds) mass discharge ranged from 3 milligrams per second (mg/s) (CFR-TARHEEL-052520) to 27 mg/s (CFR-TARHEEL-83-061920); and
- Total Table 3+ (20 compounds) mass discharge ranged from 5 mg/s (CFR-TARHEEL-052520) to 30 mg/s (CFR-TARHEEL-83-061920).

The plots of Total Table 3+ (summed over 17 compounds) concentrations over time in Figure 8 indicate that, generally, concentrations in the Cape Fear River are inversely

[1] The volume of river water was provided in cubic meters (USGS, 2019) and was converted to cubic feet for reference.

correlated to river flow rate. That is, concentrations were higher when flow rates were lowest, while concentrations were lower when river flow rates were higher. This trend is likely related to the degree of dilution occurring in the river. Higher river flows lead to a greater volume of water that the mass loads are distributed over leading to a lower concentration value. The plots of Total Table 3+ (summed over 17 compounds) mass discharge over time in Figure 9 show that the mass discharge since March 28, 2020 are typically between 5 and 20 mg/s with approximately (i.e., 75% of the data fall in this range). The minimum and maximum mass discharge were2.8 mg/s (May 25, 2020) and 27 mg/s (June 19, 2020), respectively.

For this reporting period the In-River Mass Load and the Total PFAS mass load is identical as no Remedy Captured PFAS Mass Loads were quantitated. The Total PFAS mass loads are presented in Table 11, which include results from the Q1 2020 sampling period.

4.2 Remedy Captured PFAS Mass Load

Remedies implemented by Chemours will reduce PFAS mass loads to the Cape Fear River. Presently, implemented remedies include air abatement measures for direct aerial deposition (e.g., carbon beds, Thermal Oxidizer, etc.). This report and past reports have estimated the contributions from direct aerial deposition to be less than two percent of the total load based on air deposition modeling estimates for emissions reductions. Assessment of remedies, including air deposition reductions, are presently ongoing and future Mass Loading Assessment updates may include estimates of mass loading reductions from these controls.

Remedies to be implemented by Chemours (e.g. onsite seeps interim remedies, Outfall 002 remedies) that will prevent PFAS mass loads from reaching the Cape Fear River will be quantified and accounted for in future Mass Loading Assessments.

4.3 Mass Discharge at Bladen Bluffs, Tar Heel Ferry Road Bridge and Kings Bluff Intake Canal

As shown in the table below, Total PFAS concentrations and mass discharges slightly decreased with increasing distance downstream, where the lowest values were observed at CFR-KINGS (the furthest location downstream). Total Table 3+ PFAS (summed over 17 compounds) concentrations at the three downstream river locations ranged from 160 ng/L (CFR-KINGS) to 210 ng/L (CFR-BLADEN and CFR-TARHEEL). Similar Total Table 3+ PFAS concentrations were observed when summed over the 20 compounds and ranged from 220 ng/L (CFR-KINGS) to 270 ng/L (CFR-BLADEN and CFR-TARHEEL). In the same way, the Total PFAS mass discharge ranged from 7.6 mg/s (CFR-KINGS) to 10 mg/s (CFR-BLADEN) when Table 3+ concentrations were summed

over 17 compounds and ranged from 10.4 mg/s (CFR-KINGS) to 13 mg/s (CFR-BLADEN) when Table 3+ concentrations were summed over 20 compounds.

Sample Location	Sample Collection Date	Flow Rate (cfs)	Table 3+ (17 compounds)		Table 3+ (20 compounds)	
			Concentration (ng/L)	Mass Discharge (mg/s)	Concentration (ng/L)	Mass Discharge (mg/s)
CFR-BLADEN	5/13/2020	1,680	210	10	270	13
CFR-TARHEEL	5/14/2020	1,540	200	8.7	270	11.8
CFR-KINGS	5/19/2020	1,670	160	7.6	220	10.4

5 CAPE FEAR RIVER PFAS MASS LOADING MODEL

While Section 4 presented the mass load in the Cape Fear River, this section presents an analysis evaluating the relative loadings from the identified PFAS transport pathways to the observed in-river PFAS mass discharge. This evaluation helps to confirm that the pathways, where mitigative measures are planned, will result in reductions of PFAS loading to the Cape Fear River. This evaluation was performed using the Mass Loading Model. The following subsections describe the transport pathways, model design, and the results of the Mass Loading Model assessment, including the sensitivity and the limitations of the Mass Loading Model.

5.1 PFAS Mass Loading Model Pathways

The nine potential pathways representing compartments to the PFAS Mass Loading Model are briefly described below and described in more detail in the *Cape Fear River PFAS Mass Loading Calculation Protocol* (Geosyntec, 2020c). The following pathways were identified as potential contributors of PFAS to the river PFAS concentrations:

- **Transport Pathway 1**: Upstream Cape Fear River and Groundwater – This pathway is comprised of contributions from non-Chemours related PFAS sources on the Cape Fear River and tributaries upstream of the Site, and upstream offsite groundwater with PFAS present from aerial deposition;
- **Transport Pathway 2**: Willis Creek – Groundwater and stormwater discharge and aerial deposition to Willis Creek and then to the Cape Fear River;
- **Transport Pathway 3**: Direct aerial deposition of PFAS on the Cape Fear River (see Appendix H for further details);
- **Transport Pathway 4**: Outfall 002 – Comprised of (i) water drawn from the Cape Fear River and used as non-contact cooling water, (ii) treated non-Chemours

process water, (iii) Site stormwater, (iv) steam condensate, and (v) power neutralization discharge, which are then discharged through Outfall 002;

- **Transport Pathway 5**: Onsite Groundwater – Direct upwelling of onsite groundwater to the Cape Fear River from the Black Creek Aquifer (see Appendix F for further details);
- **Transport Pathway 6**: Seeps – Onsite groundwater seeps A, B, C and D above the Cape Fear River water level on the bluff face from the facility that discharge into the Cape Fear River;
- **Transport Pathway 7**: Old Outfall 002 – Groundwater discharge to Old Outfall 002 and stormwater runoff that flows into the Cape Fear River;
- **Transport Pathway 8**: Adjacent and Downstream Offsite Groundwater – Offsite groundwater adjacent and downstream of the Site upwelling to the Cape Fear River (see Appendix I for further details); and,
- **Transport Pathway 9**: Georgia Branch Creek – Groundwater, stormwater discharge and aerial deposition to Georgia Branch Creek and then to the Cape Fear River.

5.2 Model Design

The Mass Loading Model estimates the mass discharge of PFAS from the transport pathways to the Cape Fear River. The Total PFAS mass discharge entering the Cape Fear River is defined in this model as the combined mass per unit time (MT^{-1}) or mass discharge (e.g., mg/s) from potential pathways identified in Section 5.1. Total PFAS mass load entering the Cape Fear River is calculated as:

Equation 2: Cape Fear River Estimated Mass Discharge from Mass Loading Model

$$MD_{CFR} = \sum_{p=1}^{9}\sum_{i=1}^{I} MD_{p,i} = \sum_{p=1}^{9}\sum_{i=1}^{I}\left(C_{n,i} \times Q_n\right)$$

where,

MD_{CFR} = Total PFAS estimated mass discharge entering the Cape Fear River, measured in mass per unit time [MT^{-1}], typically mg/s;

p = represents each of the 9 potential PFAS transport pathways described further in Section 4.4. To facilitate model construction, the Seeps (Transport Pathway 6) were further discretized as Seep A (Transport Pathway 6A), Seep B (Transport

Pathway 6B), Seep C (Transport Pathway 6C) and Seep D (Transport Pathway 6D);

i = represents each of the PFAS constituents being evaluated;

I = represents total number of PFAS constituents included in the summation of Total PFAS concentrations;

$MD_{p,i}$ = mass load of each PFAS constituent i from each potential pathway p with measured units in mass per unit time [MT^{-1}], typically mg/s;

$C_{p,i}$ = concentration of each PFAS constituent i from each potential pathway p with measured units in mass per unit volume [ML^{-3}], typically ng/L; and

Q_n = volumetric flow rate from each potential pathway n with measured units in volume per time [L^3T^{-1}], typically liters per second (L/s).

For the Q2 2020 Mass Loading Model assessment, data sources used as model inputs for each potential pathway are described in Table 14. These data sources included flow measurements, water levels and analytical results from the Q2 2020 sampling events (as discussed in Section 3) and supplemental data provided in Appendices C, F, G, and I.

5.3 Mass Loading Model Results

The pathway-specific PFAS mass discharges estimated from the Mass Loading Model and measured at CFR-TARHEEL are summarized in Table 15. A summary of the Total PFAS mass discharge estimates per pathway and a comparison to the observed mass discharge at CFR-TARHEEL is provided in Table 16 and shown in Figure 14. A comparison of relative contributions per pathway between the Q1 2020 and the Q2 2020 assessment is provided in Table 17.

The model-estimated Total PFAS mass discharge compared to the measured mass discharge at CFR-TARHEEL (Table 16 and Figure 14) are as follows:

- Total Table 3+ (17 compounds) – ranged from 17 mg/s (lower bound) to 21 mg/s (upper bound), while the measured mass discharge at CFR-TARHEEL was 8.0 mg/s; and
- Total Table 3+ (20 compounds) – ranged from 20 mg/s (lower bound) to 24 mg/s (upper bound), while the measured mass discharge at CFR-TARHEEL was 11 mg/s.

While the ranges in the lower and upper bounds for the modelled mass discharge estimates are not wide (within 4 mg/s), the measured mass discharge at CFR-TARHEEL is lower than the modelled estimates. Several hypotheses are being explored to

understand the discrepancy between modeled and measured mass discharge and are described in Section 5.5.

In general, the relative contributions per pathway derived from model-estimated Total Table 3+ PFAS mass discharge are similar when Total Table 3+ concentrations were summed over 17 and 20 compounds (Table 16 and Figure 14); therefore, based on this similarity and for clarity of discussion model results for only the Total Table 3+ PFAS (17 compounds) are discussed below.

The Mass Loading Model estimates that the seeps and Old Outfall 002 (Transport Pathways 6 and 7, respectively) had the highest contribution of Total Table 3+ (17 compounds) PFAS mass discharge in May 2020, with a combined contribution ranging from approximately 64% to 77% (Table 16). The Old Outfall 002 contributed 23% to 28% of the estimated mass discharge, which is consistent with the previous Mass Loading Model assessment performed in Q1 2020. The onsite seeps contributed from 41% to 49% of the mass discharge, which is consistent with the Q1 2020 estimates.

Onsite groundwater (Transport Pathway 5) is the next highest mass discharge pathway to the Cape Fear River, contributing from 2% to 19% of the model estimated Total Table 3+ (17 compounds) mass discharge (Table 16 and Figure 15), which is consistent with the Q1 2020 estimate. For this pathway, the lower and upper bounds cover a wider range than other pathways because the hydraulic conductivity in the Black Creek Aquifer, one of the most sensitive input parameters into the model, was varied to better understand the potential range of PFAS mass discharge from onsite groundwater discharging to the Cape Fear River. As such, the minimum and geometric mean hydraulic conductivity values were used in the PFAS mass discharge calculation (Appendix F). The hydraulic conductivity of the Black Creek Aquifer is expected to be better constrained following installation of passive flux meters and implementation of aquifer tests as part of the groundwater pre-design investigation anticipated to be completed over the remainder of 2020.

Willis Creek and Georgia Branch Creek (Transport Pathways 2 and 9, respectively) were estimated to contribute between 6% to 7% of the Total Table 3+ (17 compounds) mass discharge to the Cape Fear River in May 2020. These contributions are consistent with estimated contributions reported in Q1 2020.

Outfall 002 (Transport Pathway 4) contributed approximately 1% of the Total Table 3+ (17 compounds) mass load to the Cape Fear River in May 2020, similar to what was estimated in Q1 2020. Loading at Outfall 002 is expected to continue to decline as potential future controls are implemented.

Upstream River Water and Groundwater and Adjacent and Downstream Offsite Groundwater (Transport Pathways 1 and 8, respectively) contributed 11% 13% of the

Total Table 3+ (17 compounds) mass discharge to the Cape Fear River in May 2020. These estimates are higher than those reported in Q1 2020 because PFAS concentrations were non-detect in the upstream river sample resulting in no estimated mass discharge for these two pathways. Aerial Deposition (Pathway 3) remained the same with a relative contribution of <1%.

Pathway	Total Table 3+ (17 Compounds)			
	Q1 2020 (April 2020)		Q2 2020 (May 2020)	
	Lower	Upper	Lower	Upper
[1] Upstream River Water and Groundwater	0%	0%	9%	8%
[2] Willis Creek	4%	3%	3%	3%
[3] Aerial Deposition on Water Features	<1%	<1%	<1%	<1%
[4] Outfall 002	1%	<1%	1%	1%
[5] Onsite Groundwater	5%	43%	2%	19%
[6] Seeps	56%	34%	49%	41%
[7] Old Outfall 002	30%	23%	28%	23%
[8] Offsite Adjacent and Downstream Groundwater	0%	0%	4%	3%
[9] Georgia Branch Creek	4%	2%	4%	3%

5.4 Mass Loading Model Sensitivity and Limitations

The Mass Loading Model assessments provide PFAS mass discharge estimates and relative proportions of loadings for a 'snapshot' in time. While controlling for temporal variability, the model-based mass discharge estimates contain some level of uncertainty due to the inherent variability and measurement error in the input parameters, e.g., flow, concentrations, etc. To better understand the sensitivity of the model to the various pathway-specific input parameters, the uncertainties associated with the input parameters were used to conduct a sensitivity analysis. For each pathway, the input parameters, assumed associated uncertainties and the resulting level of model sensitivity were presented in Q1 2020 report (Geosyntec, 2020b).

The results of the sensitivity analysis indicated that the onsite groundwater term has the highest level of uncertainty and the model is the most sensitive to measurement error in and variability of its input parameters, namely, hydraulic conductivity (which in heterogenous environments can span orders of magnitude). The uncertainty associated with model-based mass discharge estimates was, therefore, quantified based on the minimum and geometric mean hydraulic conductivity values, respectively, for the onsite groundwater pathway. Hence, for the Q1 and Q2 2020 events, the model-estimated mass discharge was presented as a range with a lower and upper bound based on the minimum

and geometric mean hydraulic conductivity values, respectively, used in the onsite groundwater pathway.

Ongoing groundwater and seep remedy pre-design investigations will help refine the understanding of relationships between the pathways and their relative contributions, particularly for onsite groundwater. For example, two components of the pre-design investigation, anticipated in Q3 and Q4 2020, includes installation of passive flux meters in wells along the Cape Fear River and aquifer tests in extraction wells adjacent to the Cape Fear River. Both investigations will provide a better understanding of the connection between the Black Creek Aquifer and the Cape Fear River.

5.5 Modeled Versus Measured Mass Discharges

The Mass Loading Model is a suitable tool to evaluate which PFAS transport pathways are significant contributors of mass to the Cape Fear River. The capabilities of the Mass Loading Model will be evaluated with the installation of the Old Outfall 002 capture and treatment system and the Seeps Interim Remedies. If the Mass Loading Model is correct, there will be a decrease in the relative Cape Fear River PFAS mass load at CFR-TARHEEL that corresponds to the degree of Seep and Old Outfall load reduction estimated by the model.

The model presently estimates that the Seeps and Old Outfall 002 are the two highest contributors of mass loading to the Cape Fear River. In both Q1 and Q2 2020, the Mass Loading Model overestimated concentrations of Total PFAS in the Cape Fear River compared to mass loads measured downriver at CFR-TARHEEL. The relatively large overestimates in Q2 2020 suggest that there may be factors not being considered in either the measured or model-estimated PFAS loads that are likely biasing the calculations, e.g., potential environmental losses of PFAS between the pathways and the downstream monitoring location at CFR-TARHEEL.

To evaluate these potential factors, a set of hypotheses was generated. These hypotheses are being evaluated and the results of the evaluation will be described in a future quarterly report. The hypotheses fall into four categories all of which could lead to the same discrepancy outcome with the model overpredicting river concentrations. Descriptions of possible hypotheses for each category are given below:

Category 1: Underestimate of Cape Fear River Sample Concentrations

- Matrix Interference –Concentrations of PFAS in Cape Fear River samples may be underestimated due to matrix interference effects. This hypothesis is not likely able to explain these discrepancies because the matrix spike samples from the Cape Fear River have shown good recoveries for Table 3+ (17 compounds).

Category 2: Underestimate of Cape Fear River Flow Volumes

- Inaccurate flow readings –The measured flow volumes at W.O. Huske Dam provided by the United Sand at CFR-TARHEEL may be imprecise. This hypothesis is being evaluated.

Category 3: Overestimate of PFAS in Transport Pathway Concentrations

- Matrix Interference –Concentrations, specifically for the Seeps and Old Outfall 002 are potentially being overestimated. Matrix spike samples with high concentration spikes are being performed on a few Seep samples to evaluate this hypothesis.
- Sampling Bias – Suspended sediments, or organic carbon in the seep and Old Outfall 002 water samples are being accumulated in these samples and contributing to higher PFAS concentrations, but such sediment or organic carbon is not present in the CFR-TARHEEL samples. This hypothesis is being evaluated with samples collected with different sampling, field filtering and laboratory filtering techniques.

Category 4: Overestimate of PFAS Transport Pathway Flow Volumes

- Seep and Old Outfall 002 Flow – The flows at some or all of the Seeps and Old Outfall 002 are potentially being overestimated. These flows have been measured with temporarily installed flumes as has been allowed under United States Army Corps permits. Flume accuracy can be sensitive to installation conditions and therefore can potentially have over or under-estimated flow. This hypothesis will be evaluated by the installation of the Old Outfall 002 capture and treatment system and the flumes placed in the engineered Seeps Interim remedies.

6 SUMMARY

Two sampling events were conducted in Q2 2020:

- The PFAS Mass Load Sampling program consisting of 12 parent composite samples collected at the Tar Heel Ferry Road Bridge. The analytical results of these samples were used to calculate the in-river PFAS mass loads in the Cape Fear River during the reporting period; and
- The Q2 2020 PFAS Mass Loading Model Sampling program consisting of samples collected from PFAS transport pathways (seeps, creeks, Old Outfall, Outfall 002, groundwater and Cape Fear River) and paired water flow measurements and estimates. These data were used to assess the relative loadings per transport pathway to the Cape Fear River using the PFAS Mass Loading Model.

At present, there are data quality issues with the analysis of compounds R-PSDA, Hydrolyzed PSDA, and R-EVE. Laboratory QA/QC data and laboratory studies have demonstrated that these compounds may be subject to routine over-recovery due to matrix interference effects (Geosyntec 2020b). Consequently, in this report Total Table 3+ PFAS values are reported as both the sum of 17 and the sum of 20 compounds, where these three compounds are excluded from the sum of 17 compounds. Presenting the range of Total Table 3+ PFAS brackets the expected actual value of all 20 compounds since the sum of the 17 compounds is potentially an underestimate and the sum of all 20 compounds is an overestimate.

The Cape Fear River PFAS Mass Load assessment estimated the Total PFAS that were discharged to the Cape Fear River over the Load assessment period of May 9, 2020 to June 29, 2020. Over this period, 80 kg to 102 kg of Total Table 3+ PFAS (summed over 17 and 20 compounds, respectively) reached the Cape Fear River.

The Cape Fear River Mass Loading Model assessment determined that onsite seeps and the Old Outfall were the largest contributors of Total Table 3+ PFAS to the Cape Fear River. The relative contribution of Total Table 3+ (17 compounds) mass discharge for these two pathways ranged from 41% to 49% and 23% to 28%, respectively. The next largest contributing pathway was onsite groundwater estimated to range between 2% to 19%. While the ranges in the Total Table 3+ (17 compounds) lower and upper bounds were not wide (within 4 mg/s), the measured mass discharge at CFR-TARHEEL (8.0 mg/s) was lower than the modelled estimates (17 mg/s to 21 mg/s). The same trends persisted for the modeled and measured mass discharge estimates using Total Table 3+ (20 compounds). As discussed in Section 5.5, several hypotheses are being explored to understand the discrepancy between modeled and measured mass discharge at CFR-TARHEEL.

7 REFERENCES

Geosyntec, 2019a. Cape Fear River PFAS Loading Reduction Plan – Supplemental Geosyntec, 2019a. Seeps and Creeks Investigation Report. Chemours Fayetteville Works. August 26, 2019.

Geosyntec, 2019b. On and Offsite Assessment. Chemours Fayetteville Works. September 30, 2019.

Geosyntec, 2019c. Corrective Action Plan. Chemours Fayetteville Works. December 31, 2019.

Geosyntec, 2020a. Matrix Interference During Analysis of Table 3+ Compounds. Chemours Fayetteville Works. June 30, 2020.

Geosyntec, 2020b. Cape Fear River Table 3+ PFAS Mass Loading Assessment – First Quarter 2020 Report, Chemours Fayetteville Works. July 31, 2020.

Geosyntec, 2020c. Cape Fear River Mass Loading Calculation Protocol, Chemours Fayetteville Works. August 31, 2020.

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295

TABLES

TABLE 1
PFAS ANALYTE LIST
Chemours Fayetteville Works, North Carolina

Common Name[1]	PFAS Grouping		Chemical Name	CASN	Chemical Formula
	Table 3+ (17 compounds)	Table 3+ (20 compounds)			
HFPO-DA[2]	✓	✓	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-({1,1,1,2,3,3-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-({1,1,1,2,3,3-hexafluoro-3-[(1,2,2-trifluoroethenyl)oxy]propan-2-yl}oxy)propionic acid	69087-46-3	C8HF13O4
PFECA B	✓	✓	Perfluoro-3,6-dioxaheptanoic 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-pentaoxadodecanoic 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-[1,1,2,3,3,3-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-tetafluoroethane	1132933-86-8	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

Notes:
1 - Analyzed under analytical method Table 3+ Lab SOP.
2 - HFPO-DA can be analyzed under methods Table 3+ SOP and EPA Method 537 Mod.
EPA - Environmental Protection Agency
PFAS - Per- and Polyfluoroalkyl substances
SOP - Standard Operating Procedure

TABLE 2
SURFACE WATER SAMPLE COLLECTION AND FLOW MEASUREMENT SUMMARY
Chemours Fayetteville Works, North Carolina

Location ID	Location Description	Sample Collection Method[1]	Flow Measurement Method[2]
OLDOF-1	Mouth of Old Outfall 002	24-hour composite	Flume
SEEP-A-1	Mouth of Seep A	24-hour composite	Flume
SEEP-B-1	Mouth of Seep B	24-hour composite	--
SEEP-B-2	Tributary to Seep B	--	Flume
SEEP-B-TR1	Tributary to Seep B	--	Flume
SEEP-B-TR2	Tributary to Seep B	--	Flume
SEEP-C-1	Mouth of Seep C	24-hour composite	Flume
SEEP-D-1	Mouth of Seep D	24-hour composite	Flume
WC-1	Mouth of Willis Creek	24-hour composite	Velocity Probe
GBC-1	Mouth of Georgia Branch Creek	Grab	Velocity Probe
CFR-MILE-76	Cape Fear River Mile 76	Grab	USGS Data
CFR-BLADEN	Cape Fear River at Bladen Bluffs	Grab	USGS Data
CFR-KINGS	Cape Fear River at Kings Bluff Raw Water	Grab	USGS Data
TAR HEEL	Cape Fear River at Tar Heel Ferry Road Bridge	24-hour composite	USGS Data
W.O. Huske Dam	USGS Gauge Site No. 02105500	--	USGS Data
Intake River Water at Facility	Water Drawn Through the Intake Sampled at the Power Area at the Site	24-hour composite	Facility DMRs
Outfall 002	Outfall 002 in open channel	24-hour composite	Facility DMRs

Notes:

1 - Samples analyzed for PFAS by EPA Method 537 Mod and Table 3+ Lab SOP.

2 - Results of estimated flow at these locations are provided in Table 9 and supplemental flow measurement data are included in Appendix C.

-- - not sampled or not measured

DMRs - Discharge Monitoring Reports

EPA - Environmental Protection Agency

PFAS - per- and polyfluoroalkyl substances

USGS - USGS - United States Geological Survey

TABLE 3
GROUNDWATER MONITORING WELL SAMPLE COLLECTION AND WATER LEVEL MEASUREMENT SUMMARY
Chemours Fayetteville Works, North Carolina

Area	Hydrogeological Unit[1]	Well ID	Adjacent Surface Water Feature	Sample Collection Date	Synoptic Water Level Date
Onsite	Black Creek	PIW-3D	Cape Fear River	5/7/2020	5/5/2020
Onsite	Floodplain	PIW-7S	Cape Fear River	5/8/2020	5/5/2020
Onsite	Black Creek	PIW-7D	Cape Fear River	5/8/2020	5/5/2020
Onsite	Floodplain	LTW-01	Cape Fear River	5/7/2020	5/5/2020
Onsite	Black Creek	LTW-02	Cape Fear River	5/12/2020	5/5/2020
Onsite	Floodplain	LTW-03	Cape Fear River	5/13/2020	5/5/2020
Onsite	Floodplain	LTW-04	Cape Fear River	5/8/2020	5/5/2020
Onsite	Black Creek	LTW-05	Cape Fear River	5/8/2020	5/5/2020
Onsite	Black Creek	PZ-22	Cape Fear River	5/8/2020	5/5/2020
Onsite	Surficial	PW-06	Georgia Branch Creek	5/6/2020	5/5/2020
Onsite	Surficial	PW-07	Georgia Branch Creek	5/14/2020	5/5/2020
Onsite	Surficial	PW-04	Old Outfall	5/13/2020	5/5/2020
Onsite	Black Creek	PW-11	Old Outfall	5/7/2020	5/5/2020
Onsite	Black Creek	PW-09	Willis Creek	5/7/2020	5/5/2020
Onsite	Surficial	SMW-11	Willis Creek	5/7/2020	5/5/2020
Onsite	Surficial	SMW-10	Willis Creek	5/7/2020	5/5/2020
Onsite	Black Creek	SMW-12	Willis Creek	5/6/2020	5/5/2020
Onsite	Floodplain	PIW-1S	Cape Fear River / Willis Creek	NS	5/5/2020
Onsite	Surficial	PIW-1D	Cape Fear River / Willis Creek	5/7/2020	5/5/2020
Offsite	Black Creek	Bladen-1D	Georgia Branch Creek	5/6/2020	5/5/2020

Notes:
1 - Hydrogeologic units for existing wells determined based on boring log descriptions.
NS - not sampled

TABLE 4
GROUNDWATER ELEVATIONS - MAY 2020
Chemours Fayetteville Works, North Carolina

Area[1]	Aquifer[2]	Well ID	Gauging Date[3]	Northing (ft, SPCS NAD83)[4]	Easting (ft, SPCS NAD83)[4]	Screened Interval (ft)	TOC Elevation (NAVD 88)[5]	Depth to Water (from TOC)	Water Level (ft NAVD88)
Onsite	Black Creek Aquifer	BCA-01	05-May-20	399780.06	2050662.22	91 - 101	146	59.7	86.6
Onsite	Black Creek Aquifer	BCA-02	05-May-20	396242.32	2051062.21	92 - 102	148	73.9	74.56
Onsite	Black Creek Aquifer	BCA-03R	05-May-20	398582.23	2049522.22	88 - 98	151	50.7	100.16
Onsite	Black Creek Aquifer	BCA-04	05-May-20	395877.67	2047823.11	94 - 104	150	29.3	120.9
Onsite	Perched Zone	FTA-01	05-May-20	397907.50	2049373.61	12.0 - 22.0	151	16.35	134.28
Onsite	Perched Zone	FTA-02	05-May-20	397786.43	2049206.27	11.5 - 21.5	150	17.6	132.68
Onsite	Perched Zone	FTA-03	05-May-20	397767.09	2049313.86	12.0 - 22.0	151	17.63	133.45
Onsite	Surficial Aquifer	INSITU-01	05-May-20	401658.20	2046077.31	7.0 - 17.0	118	5.6	112.6
Onsite	Surficial Aquifer	INSITU-02	05-May-20	401863.46	2049136.62	7.0 - 17.0	113	DRY	--
Onsite	Floodplain Deposits	LTW-01	05-May-20	399566.17	2052149.95	11.0 - 26.0	53.8	15.8	38.03
Onsite	Black Creek Aquifer	LTW-02	05-May-20	398848.36	2052354.37	28.0 - 38.0	52.5	9.78	42.7
Onsite	Floodplain Deposits	LTW-03	05-May-20	398115.15	2052557.52	15.0 - 30.0	52.9	12.31	40.6
Onsite	Floodplain Deposits	LTW-04	05-May-20	397280.24	2052583.60	12.0 - 27.0	51.9	8.5	43.36
Onsite	Black Creek Aquifer	LTW-05	05-May-20	396430.68	2052738.06	29.0 - 44.0	52.0	9.29	42.72
Onsite	Perched Zone	MW-11	05-May-20	396544.40	2049051.06	11.5 - 21.5	149	24.37	124.16
Onsite	Perched Zone	MW-12S	05-May-20	397253.60	2049273.89	17.5 - 22.5	152	20.06	132
Onsite	Surficial Aquifer	MW-13D	05-May-20	397119.02	2049821.12	57 - 67	149	45.03	103.62
Onsite	Surficial Aquifer	MW-14D	05-May-20	396974.49	2049074.56	62 - 72	150	41	108.73
Onsite	Surficial Aquifer	MW-15DRR	05-May-20	398580.71	2049511.75	52.5 - 62.5	151	48.85	102.07
Onsite	Surficial Aquifer	MW-16D	05-May-20	398493.70	2048402.84	72 - 82	148	37.02	111.39
Onsite	Surficial Aquifer	MW-17D	05-May-20	398401.74	2047366.50	57 - 67	146	30.43	115.69
Onsite	Surficial Aquifer	MW-18D	05-May-20	400947.38	2046574.72	50 - 60	108	20.29	87.28
Onsite	Surficial Aquifer	MW-19D	05-May-20	401151.33	2048272.99	46 - 56	140	51.24	88.31
Onsite	Perched Zone	MW-1S	05-May-20	397080.31	2049120.73	21.0-24.0	150	18.82	131.11
Onsite	Surficial Aquifer	MW-20D	05-May-20	400791.28	2048733.91	65 - 75	137	47.97	89.21
Onsite	Surficial Aquifer	MW-21D	05-May-20	399501.70	2047074.96	72 - 82	151	46.21	105.17
Onsite	Surficial Aquifer	MW-22D	05-May-20	398518.18	2048362.68	52 - 72	149	37.96	111.1
Onsite	Perched Zone	MW-23	05-May-20	396237.61	2051063.25	9.5 - 14.5	148	14.45	133.89
Onsite	Perched Zone	MW-24	05-May-20	397303.94	2048767.69	18.8 - 23.8	150	21.35	128.96
Onsite	Perched Zone	MW-25	05-May-20	396753.37	2050989.82	12 - 17	148	13.9	133.69
Onsite	Perched Zone	MW-26	05-May-20	396265.18	2051484.67	5 - 10	148	11.52	136.18
Onsite	Perched Zone	MW-27	05-May-20	396010.33	2051472.00	10 - 15	147	14.81	132.02
Onsite	Perched Zone	MW-28	05-May-20	395719.79	2051165.93	9 - 14	145	14.24	130.46
Onsite	Perched Zone	MW-2S	05-May-20	396934.75	2049321.85	19.0 - 23.0	150	18.2	131.71
Onsite	Perched Zone	MW-30	05-May-20	397340.79	2050776.09	10 - 15	148	13.64	134.03
Onsite	Perched Zone	MW-31	05-May-20	396390.50	2049622.88	17-22	148	16.14	131.56
Onsite	Perched Zone	MW-32	05-May-20	396359.58	2049651.79	13-18.5	147	15.11	132
Onsite	Perched Zone	MW-33	05-May-20	396337.51	2049678.56	12-17	147	14.6	132.22
Onsite	Perched Zone	MW-34	05-May-20	396352.90	2049619.09	17-22	148	16.05	131.92

TABLE 4
GROUNDWATER ELEVATIONS - MAY 2020
Chemours Fayetteville Works, North Carolina

Area[1]	Aquifer[2]	Well ID	Gauging Date[3]	Northing (ft, SPCS NAD83)[4]	Easting (ft, SPCS NAD83)[4]	Screened Interval (ft)	TOC Elevation (NAVD 88)[5]	Depth to Water (from TOC)	Water Level (ft NAVD88)
Onsite	Perched Zone	MW-35	05-May-20	396332.94	2049631.16	14-19	148	15.54	132
Onsite	Perched Zone	MW-36	05-May-20	396320.09	2049651.17	12-17	148	15.83	132.06
Onsite	Perched Zone	MW-7S	05-May-20	397444.52	2049809.73	NA	147	10.71	136.76
Onsite	Perched Zone	MW-8S	05-May-20	397096.48	2049867.77	NA	146	7.33	139.15
Onsite	Perched Zone	MW-9S	05-May-20	396760.16	2049734.30	17.5-22.5	154	22.3	132.09
Onsite	Perched Zone	NAF-01	05-May-20	398349.77	2050338.81	5.0-15.0	150	8.9	140.76
Onsite	Perched Zone	NAF-02	05-May-20	398662.80	2050640.86	5.0-15.0	150	9.45	140.86
Onsite	Perched Zone	NAF-03	05-May-20	398580.65	2050755.43	5.0-15.0	150	9.62	140.82
Onsite	Perched Zone	NAF-04	05-May-20	398447.00	2050718.95	5.0-15.0	148	6.85	141.25
Onsite	Perched Zone	NAF-06	05-May-20	398809.66	2050911.91	2.75 - 12.75	146	11.52	134.91
Onsite	Perched Zone	NAF-07	05-May-20	398899.33	2050616.50	5.5 - 15.5	150	8.96	140.73
Onsite	Perched Zone	NAF-08A	05-May-20	398097.99	2050886.62	5.0 - 15.0	149	8.43	140.39
Onsite	Surficial Aquifer	NAF-08B	05-May-20	398095.64	2050879.94	43.5 - 53.5	149	53.23	95.63
Onsite	Perched Zone	NAF-09	05-May-20	397711.09	2050806.52	7.0 - 17.0	149	11.95	137.34
Onsite	Perched Zone	NAF-10	05-May-20	397612.57	2050423.15	8.25 - 18.25	150	12.23	137.77
Onsite	Perched Zone	NAF-11A	05-May-20	398909.29	2050999.92	2.5 - 7.5	141	7.53	133.06
Onsite	Surficial Aquifer	NAF-11B	05-May-20	398911.13	2050995.88	33.5 - 43.5	141	46.56	94.18
Onsite	Perched Zone	NAF-12	05-May-20	398270.56	2050777.49	18 - 23	146	6.85	139.08
Onsite	Black Creek Aquifer	PIW-10DR	05-May-20	395093.99	2052297.30	53 - 58	75.9	14.58	61.33
Onsite	Surficial Aquifer	PIW-10S	05-May-20	395104.67	2052297.04	7 - 17	76.5	18.49	57.96
Onsite	Surficial Aquifer	PIW-1D	05-May-20	400547.77	2051801.42	24.5 - 29.5	52.3	17.7	34.63
Onsite	Floodplain Deposits	PIW-1S	05-May-20	400540.61	2051792.59	7.8 - 17.8	54.2	20.21	33.99
Onsite	Black Creek Aquifer	PIW-2D	05-May-20	399925.46	2051316.31	40 - 50	96.1	36.67	59.46
Onsite	Black Creek Aquifer	PIW-3D	05-May-20	399711.75	2052088.80	19 - 24	53.3	16.68	36.64
Onsite	Black Creek Aquifer	PIW-4D	05-May-20	398817.36	2052102.82	32.3 - 37.3	53.0	10.89	42.15
Onsite	Surficial Aquifer	PIW-5S	05-May-20	398520.38	2051951.26	9.8 - 19.8	75.2	14.51	60.68
Onsite	Floodplain Deposits	PIW-6S	05-May-20	398118.14	2052540.57	18 - 28	53.4	13.86	39.5
Onsite	Black Creek Aquifer	PIW-7D	05-May-20	396787.69	2052595.37	29 - 34	48.6	5.55	43.05
Onsite	Floodplain Deposits	PIW-7S	05-May-20	396787.00	2052589.49	7 - 17	48.4	5.25	43.14
Onsite	Black Creek Aquifer	PIW-8D	05-May-20	396403.38	2052682.02	35.5 - 45.5	48.5	7	41.52
Onsite	Black Creek Aquifer	PIW-9D	05-May-20	396155.97	2052250.91	40 - 45	79.5	37.06	42.47
Onsite	Surficial Aquifer	PIW-9S	05-May-20	396148.11	2052251.10	24.8 - 29.8	79.5	29.48	50.05
Onsite	Perched Zone	PW-01	05-May-20	399064.80	2049654.30	11 - 21	150	14.96	134.59
Onsite	Surficial Aquifer	PW-02	05-May-20	399779.06	2050649.47	50 - 60	146	57.29	89.14
Onsite	Surficial Aquifer	PW-03	05-May-20	397339.81	2050765.32	35 - 45	148	42.02	105.95
Onsite	Surficial Aquifer	PW-04	05-May-20	394659.55	2050940.66	17 - 27	97.8	27.17	70.58
Onsite	Surficial Aquifer	PW-05	05-May-20	395873.10	2047812.93	65 - 75	150	29.79	120.55
Onsite	Surficial Aquifer	PW-06	05-May-20	392868.00	2045288.77	19 - 29	148	19.41	128.28
Onsite	Surficial Aquifer	PW-07	05-May-20	390847.71	2049258.26	28 - 38	148	36.57	111.59
Onsite	Black Creek Aquifer	PW-09	05-May-20	402000.08	2048979.11	44 - 54	72.9	24.87	48.05

TABLE 4
GROUNDWATER ELEVATIONS - MAY 2020
Chemours Fayetteville Works, North Carolina

Area[1]	Aquifer[2]	Well ID	Gauging Date[3]	Northing (ft, SPCS NAD83)[4]	Easting (ft, SPCS NAD83)[4]	Screened Interval (ft)	TOC Elevation (NAVD 88)[5]	Depth to Water (from TOC)	Water Level (ft NAVD88)
Onsite	Black Creek Aquifer	PW-10R	05-May-20	398516.12	2051936.59	57 - 67	75.9	27.38	48.52
Onsite	Black Creek Aquifer	PW-11	05-May-20	394354.36	2052226.72	53 - 63	73.3	32.76	40.5
Onsite	Black Creek Aquifer	PW-12	05-May-20	399500.45	2047063.51	109 - 119	151	58.16	92.45
Onsite	Black Creek Aquifer	PW-13	05-May-20	397584.26	2048029.18	120 - 130	149	33.1	116.26
Onsite	Black Creek Aquifer	PW-14	05-May-20	397325.65	2050766.36	136 - 146	148	61.57	86.4
Onsite	Black Creek Aquifer	PW-15R	05-May-20	398900.88	2051011.75	110 - 120	136	59.83	76.31
Onsite	Perched Zone	PZ-11	05-May-20	398646.25	2049820.94	15 - 20	151	12.85	138.18
Onsite	Perched Zone	PZ-12	05-May-20	399094.96	2048981.78	15.1 - 20.1	151	19.38	131.53
Onsite	Perched Zone	PZ-13	05-May-20	397708.07	2050991.73	7.1 - 12.1	149	11.37	137.83
Onsite	Perched Zone	PZ-14	05-May-20	397589.92	2050618.27	9.0 - 14.0	148	11.99	136.39
Onsite	Perched Zone	PZ-15	05-May-20	396805.09	2050112.02	10.2 - 15.2	149	13.2	135.59
Onsite	Perched Zone	PZ-17	05-May-20	396614.82	2048872.69	21.1 - 26.1	150	28.27	121.81
Onsite	Perched Zone	PZ-19R	05-May-20	397998.66	2049919.52	16 - 21	150	13.41	136.64
Onsite	Perched Zone	PZ-20R	05-May-20	398185.81	2049784.60	15 - 20	151	14.72	136.57
Onsite	Perched Zone	PZ-21R	05-May-20	398445.16	2049883.13	17 - 22	151	13.05	137.62
Onsite	Black Creek Aquifer	PZ-22	05-May-20	397272.80	2052584.04	36.0 - 46.0	51.8	7.43	44.38
Onsite	Perched Zone	PZ-24	05-May-20	396117.94	2050744.07	11 - 16	148	14.59	132.94
Onsite	Perched Zone	PZ-25	05-May-20	395968.99	2050752.57	14 - 19	148	DRY	--
Onsite	Perched Zone	PZ-26	05-May-20	396059.78	2050382.35	11 - 16	148	13.9	133.8
Onsite	Perched Zone	PZ-27	05-May-20	395922.11	2050376.76	12 - 17	147	14.01	133.16
Onsite	Perched Zone	PZ-28	05-May-20	396304.55	2049933.79	13 - 18	149	14.44	134.2
Onsite	Perched Zone	PZ-29	05-May-20	396371.49	2049768.94	13 - 18	148	14.72	133.02
Onsite	Perched Zone	PZ-31	05-May-20	396428.73	2049594.36	14 - 19	148	18.27	129.73
Onsite	Perched Zone	PZ-32	05-May-20	396418.47	2049713.79	13 - 18	148	15.59	132.88
Onsite	Perched Zone	PZ-33	05-May-20	396308.92	2049707.66	12.5 - 17.5	147	14.27	132.44
Onsite	Perched Zone	PZ-34	05-May-20	396292.05	2049595.04	13.5 - 18.5	148	15.99	131.7
Onsite	Perched Zone	PZ-35	05-May-20	398232.64	2050020.49	13 - 18	150	12.78	137.65
Onsite	Surficial Aquifer	PZ-L	05-May-20	396745.80	2048684.01	13-28	NA	29.71	470.29
Onsite	Surficial Aquifer	SMW-01	05-May-20	395295.75	2043679.19	5.0 - 15.0	137	12.78	124.03
Onsite	Perched Zone	SMW-02	05-May-20	399983.75	2050654.77	5.0 - 20.0	148	12.67	135.26
Onsite	Surficial Aquifer	SMW-02B	05-May-20	399983.48	2050660.48	43.0 - 53.0	145	DRY	--
Onsite	Perched Zone	SMW-03	05-May-20	399778.25	2049445.96	10.0 - 20.0	151	DRY	--
Onsite	Black Creek Aquifer	SMW-03B	05-May-20	399785.75	2049421.54	72 - 82	150	57.88	92.55
Onsite	Perched Zone	SMW-04A	05-May-20	399668.71	2048387.57	19.5 - 34.5	148	DRY	--
Onsite	Surficial Aquifer	SMW-04B	05-May-20	399667.12	2048390.30	43.0 - 53.0	148	46.61	101.76
Onsite	Perched Zone	SMW-05	05-May-20	399334.07	2048557.33	10.0 - 20.0	148	23.07	125.03
Onsite	Perched Zone	SMW-06	05-May-20	399172.35	2048759.48	12.0 - 22.0	151	24.94	126.03
Onsite	Surficial Aquifer	SMW-06B	05-May-20	399144.74	2048764.94	58 - 68	150	48.57	101.75
Onsite	Perched Zone	SMW-07	05-May-20	398932.91	2048611.16	13.0 - 23.0	148	19.36	128.28
Onsite	Perched Zone	SMW-08	05-May-20	399064.97	2048468.78	21.0 - 31.0	151	DRY	--

TABLE 4
GROUNDWATER ELEVATIONS - MAY 2020
Chemours Fayetteville Works, North Carolina

Area[1]	Aquifer[2]	Well ID	Gauging Date[3]	Northing (ft, SPCS NAD83)[4]	Easting (ft, SPCS NAD83)[4]	Screened Interval (ft)	TOC Elevation (NAVD 88)[5]	Depth to Water (from TOC)	Water Level (ft NAVD88)
Onsite	Surficial Aquifer	SMW-08B	05-May-20	399058.33	2048478.84	58 - 68	149	42.02	106.79
Onsite	Surficial Aquifer	SMW-09	05-May-20	401076.89	2050017.41	52 - 62	141	57.02	84.41
Onsite	Black Creek Aquifer	SMW-10	05-May-20	402307.31	2047923.84	39 - 49	76.3	29.22	47.04
Onsite	Surficial Aquifer	SMW-11	05-May-20	401996.15	2048975.38	13 - 23	72.0	13.51	58.44
Onsite	Black Creek Aquifer	SMW-12	05-May-20	401314.20	2051007.22	88 - 98	118	83.75	34.47
Offsite	Black Creek Aquifer	Bladen-1D	05-May-20	387522.25	2050247.40	37 - 47	77.0	19.44	57.52
Offsite	Surficial Aquifer	Bladen-1S	05-May-20	387518.97	2050233.35	5 - 10	76.7	DRY	--
Offsite	Black Creek Aquifer	Bladen-2D	05-May-20	368827.09	2042878.34	70 - 75	138	17.07	121.2
Offsite	Surficial Aquifer	Bladen-2S	05-May-20	368821.46	2042882.92	10 - 20	138	4.33	133.71
Offsite	Black Creek Aquifer	Bladen-3D	05-May-20	396856.98	2059006.56	33.75 - 43.75	75.5	11.25	64.27
Offsite	Surficial Aquifer	Bladen-3S	05-May-20	396862.31	2059012.93	5 - 15	74.3	8.27	66
Offsite	Black Creek Aquifer	Bladen-4D	05-May-20	363255.12	2087636.87	46.75 - 51.75	59.7	0.58	59.08
Offsite	Surficial Aquifer	Bladen-4S	05-May-20	363263.19	2087637.46	4.75 - 14.75	59.7	4.88	54.8
Offsite	Black Creek Aquifer	Cumberland-1D	05-May-20	431459.95	2011071.39	40 - 50	175	3.93	170.67
Offsite	Surficial Aquifer	Cumberland-1S	05-May-20	431459.95	2011071.39	15 - 25	175	3.65	171.08
Offsite	Black Creek Aquifer	Cumberland-2D	07-May-20	449987.54	2074019.14	47 - 57	129	3.35	125.88
Offsite	Surficial Aquifer	Cumberland-2S	07-May-20	449979.10	2074020.86	7 - 17	129	2.73	126.33
Offsite	Black Creek Aquifer	Cumberland-3D	05-May-20	423248.12	2060409.16	22 - 27	78.8	6.75	72.04
Offsite	Surficial Aquifer	Cumberland-3S	05-May-20	423254.64	2060413.30	9 - 14	79.1	6.75	72.31
Offsite	Black Creek Aquifer	Cumberland-4D	05-May-20	413095.77	2078249.95	57 - 67	119	12.3	106.92
Offsite	Surficial Aquifer	Cumberland-4S	05-May-20	413086.63	2078255.53	10 - 20	119	6.76	112.6
Offsite	Black Creek Aquifer	Cumberland-5D	05-May-20	405673.82	2138069.54	52 - 57	NA	7.59	99.08
Offsite	Surficial Aquifer	Cumberland-5S	05-May-20	405673.82	2138069.54	14 - 24	NA	1.91	104.74
Offsite	Black Creek Aquifer	Robeson-1D	05-May-20	381416.28	2020158.93	42.75 - 52.75	156	11.5	144.86
Offsite	Surficial Aquifer	Robeson-1S	05-May-20	381408.19	2020156.86	17 - 27	157	8.72	147.94

Notes:

1 - Area - refers to location of well within site property boundary ("Onsite") and outside property boundary ("Offsite").

2 - Aquifer - refers to primary aquifer unit well screen is estimated to be screened within.

3 - Survey completed by Freeland-Clinkscales & Associates of NC.

4 - Northing and Easting provided in North Carolina State Plane System (zone 3200), North American Datum 1983.

5 - Vertical datum is North American Vertical Datum of 1988.

-- - Dry well, no water level

ft - feet

NAVD88 - North American Vertical Datum of 1988

SPCS NAD83 - State Plane Coordinate System North American Datum 1983

TOC - top of casing

TABLE 5
SEEP AND SURFACE WATER FIELD PARAMETERS
Chemours Fayetteville Works, North Carolina

Location	Date	pH (S.U.)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Specific Conductivity (mS/cm)	Temperature (°C)
SEEP A	5/13/2020	4.0	8.9	130	13	150	15.5
SEEP B	5/13/2020	4.4	7.6	66	10	110	16.4
SEEP C	5/13/2020	4.5	8.4	61	34	110	15.9
SEEP D	5/13/2020	3.9	8.4	77	24	160	16.5
CFR-BLADEN	5/13/2020	6.7	8.2	13	12	0.09	19.8
CFR-KINGS	5/19/2020	6.7	6.4	25	21	0.10	21.7
CFR-RM-76	5/13/2020	7.0	7.6	-5.1	6.6	0.12	17.7
CFR-TARHEEL	5/14/2020	7.0	8.0	-16	6.8	0.11	19.2
GBC-1	5/13/2020	4.5	8.5	27	16	0.10	17.5
OLDOF-1	5/13/2020	3.5	8.6	220	5.2	270	18.0
OUTFALL 002	5/13/2020	6.6	9.1	54	8.5	130	19.9
WC-1	5/13/2020	5.7	8.7	35	5.5	0.10	15.7

Abbreviations:
°C - degrees Celsius
mg/L - milligrams per liter
mS/cm - millisiemens per centimeter
mV- millivolts
NTU - Nephelometric Turbidity Units
S.U. - Standard Units

TABLE 6
GROUNDWATER FIELD PARAMETERS
Chemours Fayetteville Works, North Carolina

Location	Date	pH (S.U.)	Dissolved Oxygen (mg/L)	Oxidation Reduction Potential (mV)	Turbidity (NTU)	Specific Conductance (mS/cm)	Temperature (^{o}C)
Bladen-1D	5/6/2020	5.7	0.07	23	5.8	0.06	21.3
LTW-01	5/7/2020	4.0	0.16	120	4.3	0.13	17.8
LTW-02	5/12/2020	5.0	0.10	78	2.2	0.07	17.2
LTW-03	5/13/2020	5.2	3.9	150	0.15	0.05	34.2
LTW-04	5/8/2020	4.5	0.12	29	9.9	89.8	18.2
LTW-05	5/8/2020	4.3	0.04	47	7.0	0.12	17.7
PIW-1D	5/7/2020	3.6	0.06	120	3.8	0.20	16.6
PIW-3D	5/7/2020	4.8	0.04	110	3.7	0.10	17.1
PIW-7D	5/8/2020	4.4	0.04	42	3.5	0.09	18.0
PIW-7S	5/8/2020	5.1	0.07	--	2.7	0.11	17.6
PW-04	5/12/2020	3.9	0.54	96	160	0.37	18.9
	5/13/2020	4.3	4.2	64	0.36	0.05	36.5
PW-06	5/6/2020	4.0	2.1	78	4.8	0.05	17.8
PW-07	5/12/2020	4.8	8.0	78	29	0.04	19.7
	5/14/2020	6.2	8.3	11	15	101	20.0
PW-09	5/7/2020	10.3	5.1	75	1.5	--	19.6
PW-11	5/7/2020	4.0	--	110	6.7	0.46	17.9
PZ-22	5/8/2020	4.5	0.08	44	1.8	0.11	17.8
SMW-10	5/7/2020	5.3	0.05	52	0.03	--	27.3
SMW-11	5/7/2020	3.9	4.9	160	6.6	--	21.5
SMW-12	5/6/2020	3.7	0.89	52	1.8	0.20	17.5

Abbreviations:
> - greater than
°C - degrees Celsius
mg/L - milligrams per liter
mS/cm - millisiemens per centimeter
mV- millivolts
NTU - nephelometric Turbidity Unit
S.U. - Standard Units
-- - measurement not recorded

TABLE 7
CAPE FEAR RIVER MASS LOAD ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Event	Q1 2020	Q1 2020	Q1 2020	Q1 2020	Q1 2020	Q1 2020
Location ID	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL
Field Sample ID	FAY-CFR-TARHEEL-021420	CAP1Q20-TARHEEL-032720	CFR-TARHEEL-83-033120	CFR-TARHEEL-83-033120-D	CAP1Q20-CFR-TARHEEL-040220	CFR-TARHEEL-48-040220
Sample Date	2/14/2020	3/26/2020	3/31/2020	3/31/2020	4/2/2020	4/2/2020
Sample Type	Grab	Grab	Composite	Composite	Grab	Composite
Sample Start Date and Time	-	-	3/28/20 1:00 AM	3/28/20 1:00 AM	-	3/31/20 1:00 PM
Sample Stop Date and Time	-	-	3/31/20 12:00 PM	3/31/20 12:00 PM	-	4/2/20 1:00 PM
Composite Duration (hours)	-	-	3/22/00 11:48 PM	3/22/00 11:48 PM	-	2/17/00 12:00 AM
QA/QC				Field Duplicate		
Sample Delivery Group (SDG)	320-58729-1	320-59859-1	320-60098-1	320-60098-1	320-60029-1	320-60098-1
Lab Sample ID	320-58729-1	320-59859-2	320-60098-1	320-60098-2	320-60029-3	320-60098-3
Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	<4	**21**	<15	**6.3**	**11**	**10**
PFMOAA	**9.5**	**44**	**26**	**29**	**35**	**42**
PFO2HxA	**4.1**	**26**	**9.3**	**8.9**	**15**	**14**
PFO3OA	<2	**5**	**2.1**	<2	**3.9**	**3.3**
PFO4DA	<2	**2.1**	<2	<2	<2	<2
PFO5DA	<2	<2	<2	<2	<2	<2
PMPA	**11**	**40**	**15**	**12**	**24**	**17**
PEPA	<20	<20	<20	<20	<20	<20
PS Acid	<2	**2.1**	<2	<2	<2	<2
Hydro-PS Acid	<2	**2.2**	<2	<2	<2	<2
R-PSDA	**3.4 J**	**14 J**	<2	<2	**8.5**	**7.9**
Hydrolyzed PSDA	**4.2 J**	**25 J**	**8.2 J**	**8.4 J**	**26**	**14 J**
R-PSDCA	<2	<2	<2	<2	<2	<2
NVHOS	<2	**3.8**	<2	<2	**2.3**	<2
EVE Acid	<2	<2	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	<2	<2	<2	<2
R-EVE	**2.4 J**	**6.1 J**	**2.1 J**	<2	**6.6**	<2
PES	<2	<2	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**25**	**150**	**52**	**56**	**91**	**86**
Total Table 3+ (20 compounds)	**35**	**190**	**63**	**65**	**130**	**110**

Notes:
Bold - Analyte detected above associated reporting limit.
B - analyte detected in an associated blank.
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
SOP - standard operating procedure
UJ - Analyte not detected. Reporting limit may not be accurate or precise.
< - Analyte not detected above associated reporting limit.
- - not applicable

TABLE 7
CAPE FEAR RIVER MASS LOAD ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Event	Q1 2020	Q1 2020	Q1 2020	Q1 2020	Q1 2020	Q1 2020	Q1 2020
Location ID	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL
Field Sample ID	CAP1Q20-CFR-TARHEEL-24-040320	CFR-TARHEEL-83-040620	CFR-TARHEEL-79-040920	CFR-TARHEEL-83-041920	CFR-TARHEEL-83-042220	CFR-TARHEEL-83-042620	CFR-TARHEEL-83-042920
Sample Date	4/3/2020	4/6/2020	4/9/2020	4/19/2020	4/22/2020	4/26/2020	4/29/2020
Sample Type	Composite	Composite	Composite	Composite	Composite	Composite	Composite
Sample Start Date and Time	4/2/20 3:00 PM	4/2/20 1:30 PM	4/5/20 11:32 PM	4/15/20 2:30 PM	4/19/20 2:30 AM	4/22/20 1:49 PM	4/26/20 12:49 AM
Sample Stop Date and Time	4/3/20 3:00 PM	4/6/20 12:30 AM	4/9/20 6:30 AM	4/19/20 1:30 AM	4/22/20 1:30 PM	4/26/20 12:49 AM	4/29/20 11:49 AM
Composite Duration (hours)	1/24/00 12:00 AM	3/22/00 11:48 PM	3/18/00 11:02 PM	3/22/00 11:48 PM	3/22/00 11:48 PM	3/22/00 11:48 PM	3/22/00 11:48 PM
QA/QC							
Sample Delivery Group (SDG)	320-60032-1	320-60098-1	320-60195-1	320-60435-1	320-60435-1	320-60619-1	320-60619-1
Lab Sample ID	320-60032-2	320-60098-4	320-60195-1	320-60435-1	320-60435-2	320-60619-1	320-60619-2
Table 3+ SOP (ng/L)							
Hfpo Dimer Acid	**18**	**17**	**20**	**5.5**	**12**	**11**	**13**
PFMOAA	**47**	**56**	**94**	**28**	**51**	**53**	**59**
PFO2HxA	**21**	**22**	**33**	**11**	**19**	**19**	**24**
PFO3OA	**4.8**	**5.5**	**8.1**	**2.6**	**5.1**	**4.8**	**5.8**
PFO4DA	<2	<2	**2.8**	<2	<2	<2	<2
PFO5DA	<2	<2	**4.9**	**6.9**	**5.5**	<2	<2
PMPA	**31**	**24**	**31**	**17**	**25**	**21**	**23**
PEPA	<20	<20	<20	<20	<20	<20	<20
PS Acid	<2	<2	<2	<2	<2	<2	<2
Hydro-PS Acid	<2	<2	<2	<2	<2	<2	<2
R-PSDA	**14 J**	**11**	**13**	<2	<2	**7.5**	**13**
Hydrolyzed PSDA	**17 B**	**20 J**	**31**	**9.6**	**17**	**23**	**27**
R-PSDCA	<2	<2	<2	<2	<2	<2	<2
NVHOS	<2	**2.1**	**5**	<2	<2	**2.8**	**3.9**
EVE Acid	<2	<2	<2	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	<2	<2	<2	<2	<2
R-EVE	**2.8 J**	<2	**3.4**	<2	<2	<2	**2.4**
PES	<2	<2	<2	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**120**	**130**	**200**	**71**	**120**	**110**	**130**
Total Table 3+ (20 compounds)	**160**	**160**	**250**	**81**	**130**	**140**	**170**

Notes:
Bold - Analyte detected above associated reporting limit.
B - analyte detected in an associated blank.
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
SOP - standard operating procedure
UJ - Analyte not detected. Reporting limit may not be accurate or precise.
< - A alyte not detected above associated reporting limit.
- not applicable

TABLE 7
CAPE FEAR RIVER MASS LOAD ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Event	Q1 2020	Q1 2020	Q1 2020	Q2 2020	Q2 2020	Q2 2020
Location ID	TARHEEL	TARHEEL	EQBLK	TARHEEL	TARHEEL	TARHEEL
Field Sample ID	CFR-TARHEEL-62-050220	CFR-TARHEEL-83-050620	CFR-EQBLK-1-040820	CFR-TARHEEL-83-051120	CFR-TARHEEL-83-051320	CAP2Q20-CFR-TARHEEL-051420
Sample Date	5/2/2020	5/6/2020	4/8/2020	5/11/2020	5/13/2020	5/14/2020
Sample Type	Composite	Composite	Grab	Composite	Composite	Grab
Sample Start Date and Time	4/30/20 9:49 AM	5/3/20 12:49 AM	-	5/6/20 12:49 PM	5/9/20 11:49 PM	-
Sample Stop Date and Time	5/2/20 11:49 PM	5/6/20 11:49 AM	-	5/9/20 11:49 PM	5/13/20 9:49 AM	-
Composite Duration (hours)	3/2/00 12:00 AM	3/22/00 11:48 PM	-	83.82	82.00	-
QA/QC			Equipment Blank			
Sample Delivery Group (SDG)	320-60763-1	320-60763-1	320-60098-1	320-60789-1	410-2522-1	320-60921-1
Lab Sample ID	320-60763-1	320-60763-2	320-60098-5	320-60789-1	410-2522-1	320-60921-3
Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**12**	**6.2**	<4	**9.4**	**13 J**	**24**
PFMOAA	**27**	**18**	<5	**34**	**69**	**75**
PFO2HxA	**16**	**9.8**	<2	**14**	**27**	**34**
PFO3OA	**3.5**	**2.1**	<2	**3.8**	**6.7**	**8.9**
PFO4DA	<2	<2	<2	<2	**2 J**	**2.4**
PFO5DA	<2	<2	<2	<2	<2	<2
PMPA	**24**	**15**	<10	**18**	**22**	**49**
PEPA	<20	<20	<20	<20	<20	<20
PS Acid	<2	<2	<2	<2	<2 UJ	<2
Hydro-PS Acid	<2	<2	<2	<2	<2 UJ	<2
R-PSDA	**20**	**11**	<2	**13**	**12 J**	**33**
Hydrolyzed PSDA	**18**	**12**	<2	**15**	**34 J**	**30**
R-PSDCA	<2	<2	<2	<2	<2	<2
NVHOS	**3.3**	<2	<2	**2.3**	**2.9**	**4.6**
EVE Acid	<2	<2	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	<2	<2	<2	<2
R-EVE	**6**	<2	<2	**2.7**	**5.2 J**	**5.6**
PES	<2	<2	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**86**	**51**	**0**	**82**	**140**	**200**
Total Table 3+ (20 compounds)	**130**	**74**	<2	**110**	**190**	**270**

Notes:
Bold - Analyte detected above associated reporting limit.
B - analyte detected in an associated blank.
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
SOP - standard operating procedure
UJ - Analyte not detected. Reporting limit may not be accurate or precise.
< - A alyte not detected above associated reporting limit.
- - not applicable

ND

TABLE 7
CAPE FEAR RIVER MASS LOAD ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Event	Q2 2020	Q2 2020	Q2 2020	Q2 2020	Q2 2020	Q2 2020
Location ID	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL
Field Sample ID	CFR-TARHEEL-83-051620	CAP2Q20-TARHEEL-24-051820	CFR-TARHEEL-83-052020	CFR-TARHEEL-052520	CFR-TARHEEL-052920	CFR-TARHEEL-060120
Sample Date	5/16/2020	5/18/2020	5/20/2020	5/25/2020	5/29/2020	6/1/2020
Sample Type	Composite	Composite	Composite	Grab	Grab	Grab
Sample Start Date and Time	5/13/20 9:49 AM	5/17/20 11:30 AM	5/16/20 9:49 PM	-	-	-
Sample Stop Date and Time	5/16/20 7:49 PM	5/18/20 11:30 AM	5/20/20 8:49 AM	-	-	-
Composite Duration (hours)	83.00	24.00	83.00	-	-	-
QA/QC						
Sample Delivery Group (SDG)	410-2522-1	410-2521-1	410-2522-1	320-61296-1	320-61296-1	320-61452-1
Lab Sample ID	410-2522-2	410-2521-4	410-2522-3	320-61296-2	320-61296-1	320-61452-1
Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**19 J**	**23**	**25**	**2**	**4.5**	<2
PFMOAA	**94**	**88**	**120**	<5	<5	**6.1**
PFO2HxA	**37**	**33**	**45**	**2.2**	**6.5**	**3.1**
PFO3OA	**8.2**	**8.6**	**10**	<2	<2	<2
PFO4DA	**2.5 J**	**2.5 J**	**3**	<2	<2	<2
PFO5DA	<2	<2	<2	<2	<2	<2
PMPA	**27**	**28**	**32**	<10	<10	<13
PEPA	<20	<20	**20**	<20	<20	<2
PS Acid	<2 UJ	<2 UJ	**2.2 J**	<2	<2	<2
Hydro-PS Acid	<2 UJ	<2 UJ	<2 UJ	<2	<2	<2
R-PSDA	**15 J**	**16 J**	**15 J**	<2	<2	**2.6**
Hydrolyzed PSDA	**47 J**	**46 J**	**54 J**	**3.4**	<2	**2.9**
R-PSDCA	<2	<2	<2	<2	<2	<2
NVHOS	**4.4**	**4.8**	**3.8**	<2	<2	<2
EVE Acid	<2	<2	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	<2	<2	<2	<2
R-EVE	**6.3 J**	**4.9 J**	**8.1 J**	**2**	<2	<2
PES	<2	<2	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**190**	**190**	**260**	**4.2**	**11**	**9.2**
Total Table 3+ (20 compounds)	**260**	**250**	**340**	**9.6**	**11**	**15**

Notes:
Bold - Analyte detected above associated reporting limit.
B - analyte detected in an associated blank.
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
SOP - standard operating procedure
UJ - Analyte not detected. Reporting limit may not be accurate or precise.
< - A alyte not detected above associated reporting limit.
- - not applicable

TABLE 7
CAPE FEAR RIVER MASS LOAD ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Event	Q2 2020	Q2 2020	Q2 2020	Q2 2020	Q2 2020	Q2 2020	Q2 2020
Location ID	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL	TARHEEL
Field Sample ID	CFR-TARHEEL-060120-D	CFR-TARHEEL-060520	CFR-TARHEEL-39-060820	CFR-TARHEEL-83-061220	CFR-TARHEEL-83-061520	CFR-TARHEEL-83-061920	CFR-TARHEEL-83-062220
Sample Date	6/1/2020	6/5/2020	6/8/2020	6/12/2020	6/15/2020	6/19/2020	6/22/2020
Sample Type	Grab	Grab	Composite	Composite	Composite	Composite	Composite
Sample Start Date and Time	-	-	6/5/20 11:06 AM	6/8/20 10:06 PM	6/12/20 9:06 AM	6/15/20 8:06 PM	6/19/20 7:06 AM
Sample Stop Date and Time	-	-	6/8/20 9:06 PM	6/12/20 8:06 AM	6/15/20 7:06 PM	6/19/20 6:06 AM	6/22/20 5:06 PM
Composite Duration (hours)	-	-	83.00	83.00	83.00	83.00	83.00
QA/QC	Field Duplicate						
Sample Delivery Group (SDG)	320-61452-1	320-61570-1	320-61852-1	320-61852-1	320-62010-1	320-62010-1	320-62127-1
Lab Sample ID	320-61452-2	320-61570-1	320-61852-1	320-61852-2	320-62010-1	320-62010-2	320-62127-1
Table 3+ SOP (ng/L)							
Hfpo Dimer Acid	**2**	**4.6**	**6.5**	**10**	**15**	**16**	**5.8**
PFMOAA	**5.3**	**9**	**9.8**	**17 J**	**14**	**11**	**4.9**
PFO2HxA	**3.2**	**6.5**	**8.3**	**13**	**13**	**18**	**8**
PFO3OA	<2	<2	<2	**3.4**	**3**	**3.8**	<2
PFO4DA	<2	<2	<2	<2	<2	<2	<2
PFO5DA	<2	<2	<2	<2	<2	<2	<2
PMPA	<13	**27**	**17**	**25**	**27**	**36**	**21**
PEPA	<2	<2	<2	**3.2**	**3.2**	**5.4**	<2
PS Acid	<2	<2	**3.4**	<2	<2	<2	<2
Hydro-PS Acid	<2	<2	<2	<2	<2	<2	<2
R-PSDA	<2	<2	**5.9**	**8.5 J**	**4.7**	**5.1**	**5.6**
Hydrolyzed PSDA	**2.6**	**5.5**	**7.2**	**9.1 J**	**8**	**7.2**	**4.1**
R-PSDCA	<2	<2	<2	<2	<2	<2	<2
NVHOS	<2	<2	<2	<2	<2	<2	<2
EVE Acid	<2	<2	<2	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	<2	<2	<2	<2	<2
R-EVE	<2	<2	<2	**3.8 J**	<2	<2	<2
PES	<2	<2	<2	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**11**	**47**	**45**	**72**	**75**	**90**	**40**
Total Table 3+ (20 compounds)	**13**	**53**	**58**	**93**	**88**	**100**	**49**

Notes:
Bold - Analyte detected above associated reporting limit.
B - analyte detected in an associated blank.
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
SOP - standard operating procedure
UJ - Analyte not detected. Reporting limit may not be accurate or precise.
< - A alyte not detected above associated reporting limit.
-- not applicable

TABLE 7
CAPE FEAR RIVER MASS LOAD ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Event	Q2 2020	Q2 2020	Q2 2020	Q2 2020	Q2 2020	Q2 2020
Location ID	TARHEEL	TARHEEL	EB	EB	FBLK	FBLK
Field Sample ID	CFR-TARHEEL-83-062620	CFR-TARHEEL-83-062920	CFR-TARHEEL-EB-052520	CFR-TARHEEL-EB-060120	CFR-TARHEEL-FB-052520	CFR-TARHEEL-FB-060120
Sample Date	6/26/2020	6/29/2020	5/25/2020	6/1/2020	5/25/2020	6/1/2020
Sample Type	Composite	Composite	Grab	Grab	Grab	Grab
Sample Start Date and Time	6/22/20 6:06 PM	6/26/20 5:06 AM	-	-	-	-
Sample Stop Date and Time	6/26/20 4:06 AM	6/29/20 3:06 PM	-	-	-	-
Composite Duration (hours)	83.00	83.00	-	-	-	-
QA/QC			Equipment Blank	Equipment Blank	Field Blank	Field Blank
Sample Delivery Group (SDG)	320-62407-1	320-62407-1	320-61296-1	320-61452-1	320-61296-1	320-61452-1
Lab Sample ID	320-62407-1	320-62407-2	320-61296-4	320-61452-4	320-61296-3	320-61452-3
Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**9.9**	**15**	**<2**	<2	<2	<2
PFMOAA	**30**	**49**	**<5**	<2	<5	<2
PFO2HxA	**13**	**18**	**<2**	<2	<2	<2
PFO3OA	**2.8**	**4**	**<2**	<2	<2	<2
PFO4DA	<2	<2	<2	**4.1**	<2	<2
PFO5DA	<2	<2	<2	<2	<2	<2
PMPA	**20**	**26**	**<10**	<13	<10	<13
PEPA	**3.2**	**4.5**	**<20**	<2	<20	<2
PS Acid	<2	<2	<2	<2	<2	<2
Hydro-PS Acid	<2	<2	<2	<2	<2	<2
R-PSDA	**11**	**15**	**<2**	<2	<2	<2
Hydrolyzed PSDA	**12**	**17**	**<2**	<2	<2	<2
R-PSDCA	<2	<2	<2	<2	<2	<2
NVHOS	<2	**2.5**	**<2**	<2	<2	<2
EVE Acid	<2	<2	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	<2	<2	<2	<2
R-EVE	**3.5**	**4.9**	**<2**	<2	<2	<2
PES	<2	<2	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**79**	**120**	**ND**	**4.1**	**ND**	**ND**
Total Table 3+ (20 compounds)	**110**	**160**	**ND**	**4.1**	**ND**	**ND**

Notes:
Bold - Analyte detected above associated reporting limit.
B - analyte detected in an associated blank.
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
SOP - standard operating procedure
UJ - Analyte not detected. Reporting limit may not be accurate or precise.
< - A alyte not detected above associated reporting limit.
- - not applicable

TABLE 8
SEEP AND SURFACE WATER ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Program	CAP SW Sampling 2Q20	CAP SW SAMPLING 2Q20	CAP SW Sampling 2Q20	CAP SW Sampling 2Q20	CAP SW Sampling 2Q20	CAP SW Sampling 2Q20
Location ID	CFR-BLADEN	CFR-KINGS	CFR-MILE-76	CFR-MILE-76	GBC-1	Intake River Water at Facility
Field Sample ID	CAP2Q20-CFR-BLADEN-051320	CAP2Q20-CFR-KINGS-051920	CAP2Q20-CFR-RM-76-051320	CAP2Q20-CFR-RM-76-051320-D	CAP2Q20-GBC-1-051320	2R00513
Sample Date	5/13/2020	5/19/2020	5/13/2020	5/13/2020	5/13/2020	5/13/2020
QA/QC				Duplicate		
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab
Sample Delivery Group (SDG)	320-60920-1	410-2520-1	320-60921-1	320-60921-1	320-60920-1	280-136659-1
Lab Sample ID	320-60920-6	410-2520-1	320-60921-1	320-60921-2	320-60920-5	280-136659-3
Total Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**25**	**18**	<4	**2**	**450**	**15**
PFMOAA	**79**	**75**	<5	<5	**110**	**13**
PFO2HxA	**35**	**28**	<2	**2**	**320**	**15**
PFO3OA	**9.6**	**6.9**	<2	<2	**50**	**2.6**
PFO4DA	**3.1**	**2.1 J**	<2	<2	**14**	<2
PFO5DA	<2	<2	<2	<2	<2	<2
PMPA	**51**	**23**	**27**	**30**	**780**	**31**
PEPA	<20	<20 UJ	<20	<20	**200**	<2
PS Acid	<2	<2 UJ	<2	<2	<2	<2
Hydro-PS Acid	<2	<2 UJ	<2	<2	**26**	<2
R-PSDA	**30**	**17 J**	**23 J**	**24**	**130**	**22**
Hydrolyzed PSDA	**32**	**31 J**	**2 J**	<2	<2	**2.5**
R-PSDCA	<2	<2	<2	<2	<2	<2
NVHOS	**4.1**	**3.2**	**3.8**	**3.4**	**4**	**3.9**
EVE Acid	<2	<2	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	<2	<2	<2	<2
R-EVE	**4**	**12 J**	<2	<2	**41**	**4.2**
PES	<2	<2	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**210**	**160**	**33**	**37**	**2,000**	**81**
Total Table 3+ (20 compounds)	**270**	**220**	**58**	**61**	**2,100**	**110**

Notes:
Bold - Analyte detected above associated reporting limit
B - analyte detected in an associated blank
EPA - Environmental Protection Agency
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
SOP - standard operating procedure
UJ - Analyte not detected. Reporting limit may not be accurate or precise.
< - Analyte not detected above associated reporting limit.

TABLE 8
SEEP AND SURFACE WATER ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Program	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20
Location ID	OLDOF-1	OUTFALL 002	SEEP-A	SEEP-B	SEEP-C	SEEP-D
Field Sample ID	CAP2Q20-OLDOF-1-24-051420	CAP2Q20-OUTFALL 002-24-051420	CAP2Q20-SEEP-A-24-051420	CAP2Q20-SEEP-B-24-051420	CAP2Q20-SEEP-C-24-051420	CAP2Q20-SEEP-D-24-051420
Sample Date	5/14/2020	5/14/2020	5/14/2020	5/14/2020	5/14/2020	5/14/2020
QA/QC						
Sample Type	Composite	Composite	Composite	Composite	Composite	Composite
Sample Delivery Group (SDG)	410-2521-1	410-2521-1	410-2519-1	410-2519-1	410-2519-1	410-2519-1
Lab Sample ID	410-2521-2	410-2521-1	410-2519-1	410-2519-2	410-2519-3	410-2519-4
Total Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**9,300 J**	**100**	**32,000 J**	**22,000 J**	**38,000 J**	**26,000 J**
PFMOAA	**79,000**	**29**	**120,000**	**190,000**	**200,000**	**100,000**
PFO2HxA	**20,000**	**24**	**50,000**	**45,000**	**61,000**	**29,000**
PFO3OA	**5,000**	**3.7**	**16,000 J**	**8,500 J**	**16,000 J**	**7,000 J**
PFO4DA	**1,700 J**	<2 UJ	**9,000**	**1,100**	**3,400**	**1,900**
PFO5DA	**600 J**	<2	**4,000**	**130**	**28**	**73**
PMPA	**6,800**	**37**	**20,000**	**30,000**	**13,000**	**7,600**
PEPA	<2,000	<20	**7,500**	**10,000**	**3,900**	**2,300**
PS Acid	**520 J**	**9.5 J**	**6,300 J**	**1,100 J**	<20 UJ	<20 UJ
Hydro-PS Acid	**390 J**	**3.4 J**	**1,600 J**	**510 J**	**450 J**	**280 J**
R-PSDA	**340**	**20 J**	**3,000**	**3,500**	**1,700**	**1,100**
Hydrolyzed PSDA	**2,100**	**110**	**37,000**	**31,000**	**3,300**	**2,500**
R-PSDCA	<200	<2	**61 J**	**41 J**	**26 J**	<20 UJ
NVHOS	**870**	**5.1**	**1,300**	**2,100**	**1,700**	**860**
EVE Acid	<200	<2	**1,100**	**1,600**	<20	<20
Hydro-EVE Acid	**220**	<2	**1,900**	**1,300**	**1,700**	**1,100**
R-EVE	**240**	**5.9 J**	**1,500**	**2,100**	**2,000**	**1,200**
PES	<200	<2	<20	<20	<20	<20
PFECA B	<200	<2	<20	<20	<20	<20
PFECA-G	<200	<2	<20	<20	<20	<20
Total Table 3+ (17 compounds)	**120,000**	**210**	**270,000**	**310,000**	**340,000**	**180,000**
Total Table 3+ (20 compounds)	**130,000**	**350**	**310,000**	**350,000**	**350,000**	**180,000**

Notes:
Bold - Analyte detected above associated reporting limit
B - analyte detected in an associated blank
EPA - Environmental Protection Agency
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
SOP - standard operating procedure
UJ - Analyte not detected. Reporting limit may not be accurate or precise.
< - Analyte not detected above associated reporting limit.

TABLE 8
SEEP AND SURFACE WATER ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Program	CAP SW Sampling 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20
Location ID	TARHEEL	TARHEEL	WC-1	EB	EB	FBLK
Field Sample ID	CAP2Q20-CFR-TARHEEL-051420	CAP2Q20-TARHEEL-24-051820	CAP2Q20-WC-1-24-051420	CAP2Q20-EB-PP-051920	CAP2Q20-EB-ISCO-052120	CAP2Q20-FB-051920
Sample Date	5/14/2020	5/18/2020	5/14/2020	5/19/2020	5/21/2020	5/19/2020
QA/QC				Equipment Blank	Equipment Blank	Field Blank
Sample Type	Grab	Composite	Composite	Grab	Grab	Grab
Sample Delivery Group (SDG)	320-60921-1	410-2521-1	410-2519-1	410-2520-1	410-2520-1	410-2520-1
Lab Sample ID	320-60921-3	410-2521-4	410-2519-5	410-2520-3	410-2520-4	410-2520-2
Total Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**24**	**23**	**410 J**	<2	<2	<2
PFMOAA	**75**	**88**	**980**	<5	<5	**6**
PFO2HxA	**34**	**33**	**400**	<2	<2	<2
PFO3OA	**8.9**	**8.6**	**59 J**	<2	<2	<2
PFO4DA	**2.4**	**2.5 J**	**13**	<2	<2	<2
PFO5DA	<2	<2	<2 UJ	<2	<2	<2
PMPA	**49**	**28**	**550**	<10	<10	<10
PEPA	<20	<20	**120**	<20	<20	<20
PS Acid	<2	<2 UJ	<2 UJ	<2 UJ	**2.2**	<2 UJ
Hydro-PS Acid	<2	<2 UJ	**9.4 J**	<2 UJ	<2	<2 UJ
R-PSDA	**33**	**16 J**	**73 J**	<2	<2	<2
Hydrolyzed PSDA	**30**	**46 J**	**430**	<2	<2	<2
R-PSDCA	<2	<2	<2 UJ	<2	<2	<2
NVHOS	**4.6**	**4.8**	**15**	<2	<2	<2
EVE Acid	<2	<2	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	**5.2**	<2	<2	<2
R-EVE	**5.6**	**4.9 J**	**47 J**	<2	<2	<2
PES	<2	<2	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**200**	**190**	**2,600**	**0.0**	**2.2**	**6.0**
Total Table 3+ (20 compounds)	**270**	**250**	**3,100**	**0.0**	**2.2**	**6.0**

Notes:
Bold - Analyte detected above associated reporting limit
B - analyte detected in an associated blank
EPA - Environmental Protection Agency
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
SOP - standard operating procedure
UJ - Analyte not detected. Reporting limit may not be accurate or precise.
< - Analyte not detected above associated reporting limit.

TABLE 9
FLOW SUMMARY FOR SEEPS, SURFACE AND RIVER WATER LOCATIONS
Chemours Fayetteville Works, North Carolina

Pathway/ Location	Flow Measurement Date	Composite Sample 24-Hour Flow Volume (MGD)[1,2]	Grab Sample Instantaneous Flow Rate (L/s)[1,3]	Flow Rate (GPM)
Upstream River Water and Groundwater[4]	5/13/2020	1,100	--	760,000
Willis Creek	5/14/2020	5.1	--	3,500
Intake River Water at Facility	5/14/2020	22	--	15,000
Outfall 002	5/14/2020	22	--	15,000
Seep A	5/14/2020	0.24	--	170
Seep B	5/14/2020	0.21	--	150
Seep C	5/14/2020	0.07	--	49
Seep D	5/14/2020	0.21	--	150
Old Outfall 002	5/14/2020	0.89	--	620
Georgia Branch Creek	5/13/2020	7.6	--	5,300
W.O'Huske[5]	5/14/2020	960	--	700,000
W.O'Huske[6]	5/14/2020	--	44,000	700,000
W.O'Huske[7]	5/13/2020	--	48,000	760,000
Cape Fear River Lock and Dam #1[8]	5/19/2020	--	47,000	740,000

Notes

1 - Flow measurement methods are described in Table 2. Detailed flow data and calculations are provided in Appendix C.

2 - Total flow volume for composite samples is based on measurements taken over 24-hour sample collection period for all locations except Georgia Branch Creek and Willis Creek. At these locations, the total flow volume over 24-hour sample collection was estimated based on the instantaneous flow measurement.

3 - Instantaneous flow rate for grab samples is the recorded flow rate at the time of grab sample collection.

4 - The volumetric flow rate for upstream river water and groundwater was estimated by subtracting inflows from Willis Creek, upwelling groundwater, seeps to the river, and Outfall 002 and by adding the river water intake from Chemours to the flow rate measurement from the W.O. Huske Dam.

5 - 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 composite sample collection.

6 - 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.

7 - Flow rate measured at USGS gauging station #02105500 located at William O Huske Lock & Dam used to estimate flow rate at Bladen Bluff during sample

8 - 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.

MGD - Milllions of gallons per day

GPM - Gallons per minute

USGS - United States Geological Survey

TABLE 10
GROUNDWATER ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Program	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20
Location ID	BLADEN-1D	BLADEN-1D	LTW-01	LTW-02	LTW-03	LTW-04
Field Sample ID	CAP2Q20-BLADEN-1D-050620	CAP2Q20-BLADEN-1D-050620-D	CAP2Q20-LTW-01-050720	CAP2Q20-LTW-02-051220	CAP2Q20-LTW-03-051320	CAP2Q20-LTW-04-050820
Sample Date	5/6/2020	5/6/2020	5/7/2020	5/12/2020	5/13/2020	5/8/2020
QA/QC		Duplicate				
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab
Sample Delivery Group (SDG)	320-60762-1	320-60762-1	320-60761-1	320-60920-1	320-60920-1	320-60791-1
Lab Sample ID	320-60762-4	320-60762-5	320-60761-2	320-60920-1	320-60920-2	320-60791-5
Total Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**200**	**190**	**24,000**	**6,800**	**11,000**	**24,000**
PFMOAA	**37**	**37**	**45,000**	**30,000**	**180,000**	**93,000**
PFO2HxA	**120**	**120**	**33,000**	**12,000**	**39,000**	**34,000**
PFO3OA	**11**	**11**	**7,200**	**2,800**	**6,500**	**6,400**
PFO4DA	<2	<2	**1,400**	**220**	**180**	**660**
PFO5DA	<2	<2	**240**	<6.7	<34	<34
PMPA	**450**	**470**	**26,000**	**5,200**	**12,000**	**23,000**
PEPA	**120**	**120**	**7,700**	**1,300**	**2,400**	**7,200**
PS Acid	<2	<2	<27	<5.3	<27	<27
Hydro-PS Acid	<2	<2	**320**	**19**	**33**	**170**
R-PSDA	**18**	**19**	**1,300**	**370**	**680**	**2,800**
Hydrolyzed PSDA	<2	<2	**780**	**680**	**2,500**	**3,900**
R-PSDCA	<2	<2	<15	<3.1	<15	**16**
NVHOS	<2	<2	**430**	**250**	**1,000**	**1,600**
EVE Acid	<2	<2	<24	<4.9	<24	<24
Hydro-EVE Acid	<2	<2	**160**	**36**	**50**	**570**
R-EVE	**7.4**	**7.7**	**780**	**260**	**460**	**2,500**
PES	<2	<2	<46	<9.2	<46	<46
PFECA B	<2	<2	<60	<12	<60	<60
PFECA-G	<2	<2	<41	<8.2	<41	<41
Total Table 3+ (17 compounds)	**940**	**950**	**150,000**	**59,000**	**250,000**	**190,000**
Total Table 3+ (20 compounds)	**960**	**970**	**150,000**	**60,000**	**260,000**	**200,000**

TABLE 10
GROUNDWATER ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Program	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20
Location ID	LTW-05	PIW-1D	PIW-3D	PIW-7D	PIW-7S	PW-04
Field Sample ID	CAP2Q20-LTW-05-050820	CAP2Q20-PIW-1D-050720	CAP2Q20-PIW-3D-050720	CAP2Q20-PIW-7D-050820	CAP2Q20-PIW-7S-050820	CAP2Q20-PW-04-051320
Sample Date	5/8/2020	5/7/2020	5/7/2020	5/8/2020	5/8/2020	5/13/2020
QA/QC						
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab
Sample Delivery Group (SDG)	320-60791-1	320-60761-1	320-60761-1	320-60791-1	320-60791-1	320-60920-1
Lab Sample ID	320-60791-2	320-60761-4	320-60761-1	320-60791-4	320-60791-1	320-60920-3
Total Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**21,000**	**9,600**	**11,000**	**10,000**	**29,000**	**700**
PFMOAA	**190,000**	**17,000 B**	**5,100 B**	**170,000**	**37,000**	**190**
PFO2HxA	**50,000**	**10,000**	**9,500**	**33,000**	**23,000**	**750**
PFO3OA	**15,000**	**1,800**	**1,900**	**3,700**	**8,000**	**340**
PFO4DA	**3,300**	**380**	**740**	**1,000**	**830**	**110**
PFO5DA	<34	<34	<34	<34	<34	<2
PMPA	**4,900**	**9,900**	**10,000**	**4,000**	**22,000**	**570**
PEPA	**360**	**2,600**	**3,100**	**450**	**7,400**	**180**
PS Acid	<27	<27	<27	<27	<27	<2
Hydro-PS Acid	**290**	**56**	**120**	**82**	**420**	**20**
R-PSDA	**930**	**430**	**460**	**360**	**2,500**	**74**
Hydrolyzed PSDA	**1,500**	<58	<58	**550**	**200**	<2
R-PSDCA	**35**	<15	<15	<15	<15	<2
NVHOS	**1,200**	**140**	<54	**920**	**1,400**	**4.9**
EVE Acid	<24	<24	<24	<24	<24	<2
Hydro-EVE Acid	**1,300**	**31**	**49**	**290**	**750**	**9.6**
R-EVE	**1,000**	**220**	**240**	**470**	**2,600**	**38**
PES	<46	<46	<46	<46	<46	<2
PFECA B	<60	<60	<60	<60	<60	<2
PFECA-G	<41	<41	<41	<41	<41	<2
Total Table 3+ (17 compounds)	**290,000**	**52,000**	**42,000**	**220,000**	**130,000**	**2,900**
Total Table 3+ (20 compounds)	**290,000**	**52,000**	**42,000**	**220,000**	**140,000**	**3,000**

TABLE 10
GROUNDWATER ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Program	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20
Location ID	PW-06	PW-07	PW-09	PW-11	PZ-22	SMW-10
Field Sample ID	CAP2Q20-PW-06-050620	CAP2Q20-PW-07-051420	CAP2Q20-PW-09-050720	CAP2Q20-PW-11-050720	CAP2Q20-PZ-22-050820	CAP2Q20-SMW-10-050720
Sample Date	5/6/2020	5/14/2020	5/7/2020	5/7/2020	5/8/2020	5/7/2020
QA/QC						
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab
Sample Delivery Group (SDG)	320-60762-1	320-60920-1	320-60761-1	320-60761-1	320-60791-1	320-60761-1
Lab Sample ID	320-60762-7	320-60920-4	320-60761-5	320-60761-3	320-60791-3	320-60761-7
Total Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**1,400**	**770**	**5.7**	**11,000**	**12,000**	<2
PFMOAA	**210**	**370**	**8 B**	**110,000**	**200,000**	**40 B**
PFO2HxA	**810**	**810**	**4.8 B**	**30,000**	**45,000**	<2
PFO3OA	**120**	**120**	<2	**15,000**	**4,100**	<2
PFO4DA	**83**	**83**	<2	**9,200**	**430**	<2
PFO5DA	<2	<2	<2	**2,400**	<67	<2
PMPA	**1,400**	**1,200**	**17**	**6,500**	**5,200**	**12**
PEPA	**430**	**280**	<20	**1,900**	**930**	<20
PS Acid	<2	<2	<2	**550**	<53	<2
Hydro-PS Acid	**37**	**7.9**	<2	**880**	**66**	<2
R-PSDA	**74**	**100**	<2	**760**	**660**	<2
Hydrolyzed PSDA	<2	<2	<2	**1,900**	**1,600**	<2
R-PSDCA	<2	<2	<2	**41**	<31	<2
NVHOS	**6.6**	**7.3**	<2	**1,300**	**1,100**	<2
EVE Acid	<2	<2	<2	**100**	<49	<2
Hydro-EVE Acid	**8.4**	**5.6**	<2	**420**	**120**	<2
R-EVE	**26**	**40**	<2	**230**	**530**	<2
PES	<2	<2	<2	<46	<92	<2
PFECA B	<2	<2	<2	<60	<120	<2
PFECA-G	<2	<2	<2	<41	<82	<2
Total Table 3+ (17 compounds)	**4,500**	**3,700**	**36**	**190,000**	**270,000**	**52**
Total Table 3+ (20 compounds)	**4,600**	**3,800**	**36**	**190,000**	**270,000**	**52**

TABLE 10
GROUNDWATER ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Program	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20
Location ID	SMW-11	SMW-12	EB	EB	EB	EB
Field Sample ID	CAP2Q20-SMW-11-050720	CAP2Q20-SMW-12-050620	CAP2Q20-EB-DV-050620	CAP2Q20-EB-PP-050620	CAP2Q20-EB-DV-050720	CAP2Q20-EB-PP-050720
Sample Date	5/7/2020	5/6/2020	5/6/2020	5/6/2020	5/7/2020	5/7/2020
QA/QC			Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab
Sample Delivery Group (SDG)	320-60761-1	320-60762-1	320-60762-1	320-60762-1	320-60761-1	320-60761-1
Lab Sample ID	320-60761-6	320-60762-6	320-60762-2	320-60762-1	320-60761-9	320-60761-8
Total Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	**5,500**	**1,900**	<2	<2	**2.5**	<2
PFMOAA	**3,400 B**	**4,800**	<5	<5	**72**	<5
PFO2HxA	**3,300 B**	**1,700**	<2	<2	**9.2**	<2
PFO3OA	**620 B**	**160**	<2	<2	**2.1**	<2
PFO4DA	**280**	**1,800**	<2	<2	<2	<2
PFO5DA	<34	**150**	<2	<2	<2	<2
PMPA	**3,000**	**2,000**	<10	<10	<10	<10
PEPA	**800**	**390**	<20	<20	<20	<20
PS Acid	<27	<27	<2	<2	<2	<2
Hydro-PS Acid	**67**	<30	<2	<2	<2	<2
R-PSDA	<160	<160	<2	<2	<2	<2
Hydrolyzed PSDA	<58	<58	<2	<2	<2	<2
R-PSDCA	<15	<15	<2	<2	<2	<2
NVHOS	<54	<54	<2	<2	<2	<2
EVE Acid	<24	**190**	<2	<2	<2	<2
Hydro-EVE Acid	**32**	**120**	<2	<2	<2	<2
R-EVE	<70	<70	<2	<2	<2	<2
PES	<46	<46	<2	<2	<2	<2
PFECA B	<60	**110**	<2	<2	<2	<2
PFECA-G	<41	**90**	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**17,000**	**13,000**	**ND**	**ND**	**86**	**ND**
Total Table 3+ (20 compounds)	**17,000**	**13,000**	**ND**	**ND**	**86**	**ND**

TABLE 10
GROUNDWATER ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Program	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20
Location ID	EB	EB	EB	EB	FBLK	FBLK
Field Sample ID	CAP2Q20-EB-PP-050820	CAP2Q20-EB-PP-051220	CAP2Q20-EB-PP-051320	CAP2Q20-EB-PP-051420	CAP2Q20-FB-050620	CAP2Q20-FB-050720
Sample Date	5/8/2020	5/12/2020	5/13/2020	5/14/2020	5/6/2020	5/7/2020
QA/QC	Equipment Blank	Equipment Blank	Equipment Blank	Equipment Blank	Field Blank	Field Blank
Sample Type	Grab	Grab	Grab	Grab	Grab	Grab
Sample Delivery Group (SDG)	320-60791-1	320-60920-1	320-60920-1	320-60920-1	320-60762-1	320-60761-1
Lab Sample ID	320-60791-6	320-60920-7	320-60920-8	320-60920-9	320-60762-3	320-60761-10
Total Table 3+ SOP (ng/L)						
Hfpo Dimer Acid	<4	<2	<2	<2	<2	<2
PFMOAA	<5	<5	<5	<5	<5	<5
PFO2HxA	<2	<2	<2	<2	<2	<2
PFO3OA	<2	<2	<2	<2	<2	<2
PFO4DA	<2	<2	<2	<2	<2	<2
PFO5DA	<2	<2	<2	<2	<2	<2
PMPA	<10	<10	<10	<10	<10	<10
PEPA	<20	<20	<20	<20	<20	<20
PS Acid	<2	<2	<2	<2	<2	<2
Hydro-PS Acid	<2	<2	<2	<2	<2	<2
R-PSDA	<2	<2	<2	<2	<2	<2
Hydrolyzed PSDA	<2	<2	<2	<2	<2	<2
R-PSDCA	<2	<2	<2	<2	<2	<2
NVHOS	<2	<2	<2	<2	<2	<2
EVE Acid	<2	<2	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	<2	<2	<2	<2
R-EVE	<2	<2	<2	<2	<2	<2
PES	<2	<2	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**
Total Table 3+ (20 compounds)	**ND**	**ND**	**ND**	**ND**	**ND**	**ND**

TABLE 10
GROUNDWATER ANALYTICAL RESULTS
Chemours Fayetteville Works, North Carolina

Sampling Program	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20	CAP MW Sampling 2Q20
Location ID	**FBLK**	**FBLK**	**FBLK**	**FBLK**
Field Sample ID	**CAP2Q20-FB-050820**	**CAP2Q20-FB-051220**	**CAP2Q20-FB-051320**	**CAP2Q20-FB-051420**
Sample Date	**5/8/2020**	**5/12/2020**	**5/13/2020**	**5/14/2020**
QA/QC	**Field Blank**	**Field Blank**	**Field Blank**	**Field Blank**
Sample Type	**Grab**	**Grab**	**Grab**	**Grab**
Sample Delivery Group (SDG)	**320-60791-1**	**320-60920-1**	**320-60920-1**	**410-2521-1**
Lab Sample ID	**320-60791-7**	**320-60920-10**	**320-60920-11**	**410-2521-3**
Total Table 3+ SOP (ng/L)				
Hfpo Dimer Acid	<4	<2	<2	<2 UJ
PFMOAA	<5	<5	<5	<5
PFO2HxA	<2	<2	<2	<2
PFO3OA	<2	<2	<2	<2
PFO4DA	<2	<2	<2	<2 UJ
PFO5DA	<2	<2	<2	<2
PMPA	<10	<10	<10	<10
PEPA	<20	<20	<20	<20
PS Acid	<2	<2	<2	<2 UJ
Hydro-PS Acid	<2	<2	<2	<2 UJ
R-PSDA	<2	<2	<2	<2
Hydrolyzed PSDA	<2	<2	<2	<2
R-PSDCA	<2	<2	<2	<2
NVHOS	<2	<2	<2	<2
EVE Acid	<2	<2	<2	<2
Hydro-EVE Acid	<2	<2	<2	<2
R-EVE	<2	<2	<2	<2
PES	<2	<2	<2	<2
PFECA B	<2	<2	<2	<2
PFECA-G	<2	<2	<2	<2
Total Table 3+ (17 compounds)	**ND**	**ND**	**ND**	**ND**
Total Table 3+ (20 compounds)	**ND**	**ND**	**ND**	**ND**

Notes:
Bold - Analyte detected above associated reporting limit
B - analyte detected in an associated blank
EPA - Environmental Protection Agency
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
SOP - standard operating procedure
UJ – Analyte not detected. Reporting limit may not be accurate or precise.
< - Analyte not detected above associated reporting limit.

TABLE 11
SUMMARY OF CALCULATED TOTAL MASS LOAD IN THE CAPE FEAR RIVER
Chemours Fayetteville Works, North Carolina

Reporting Peroid	Reporting Period Details				Total Table 3+ (17 Compounds)			Total Table 3+ (20 Compounds)		
	Start Date	End Date	Days	River volume (m^3)	Load in Cape Fear River (kg)[1]	Remedy Reduction Loads (kg)[2]	Total Load to Cape Fear River (kg)[3]	Load in Cape Fear River (kg)[1]	Remedy Reduction Loads (kg)[2]	Total Load to Cape Fear River (kg)[3]
2020-Q1 Report	03/28/2020 1:00	05/09/2020 23:49	43	514,570,000	46	0	46	59	0	59
2020-Q2 Report	05/09/2020 23:49	06/29/2020 16:06	51	1,308,600,000	80	0	80	102	0	102
Total	**03/28/2020 1:00**	**06/29/2020 16:06**	**94**	**1,823,170,000**	**126**	**0**	**126**	**161**	**0**	**161**

Notes:
1 - Calculated Cape Fear River loads represents loads measured in the Cape Fear River at the CFR-TARHEEL sampling location downstream of the Site.
2 - Calculated remedy reduction loads represents loads from environmental pathways (e.g. Old Outfall 002, Seeps, etc.,) that were prevented from reaching the Cape Fear River.
3 - Total load to Cape Fear River represents the sum of the measured in-river load and the remedy reduction load. This value represents the baseline load that would reach the Cape Fear River in the absence of any remedies.
kg - kilograms

TABLE 12
CAPE FEAR RIVER PFAS MASS LOAD BY COMPOUND AND TIME INTERVAL
Chemours Fayetteville Works, North Carolina

Interval Details					Calculated Mass Load [5] (kg)																				
Interval ID	**Start Time [2]**	**End Time [2]**	**Hours Composited**	**Total River Flow (m^3)**	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	**Total Table 3+ (17 Compounds)**	**Total Table 3+ (20 Compounds)**
2020_1_Q1	3/28/20 1:00	3/31/20 12:30	83	90,900,000	0.29	2.50	0.83	0.10	0	0.00	1.23	0	0	0	0	0.75	0	0	0	0	0.10	0	0	0	4.9	5.8
2020_2_Q1	3/31/20 12:30	4/2/20 13:30	49	27,760,000	0.28	1.17	0.39	0.09	0	0.00	0.47	0	0	0	0.22	0.39	0	0	0	0	0	0	0	0	2.4	3.0
2020_3_Q1	4/2/20 13:30	4/3/20 15:00	25	9,680,000	0.17	0.48	0.21	0.05	0	0.00	0.28	0	0	0	0.13	0.17	0	0	0	0	0.02	0	0	0	1.2	1.5
2020_4_Q1	4/3/20 15:00	4/6/20 0:00	57	15,150,000	0.28	1.14	0.42	0.10	0.02	0.04	0.42	0	0	0	0.18	0.39	0	0.05	0	0	0.03	0	0	0	2.5	3.1
2020_5_Q1	4/6/20 0:00	4/9/20 6:30	79	16,570,000	0.33	1.56	0.55	0.13	0.05	0.08	0.51	0	0	0	0.22	0.51	0	0.08	0	0	0.06	0	0	0	3.3	4.1
2020_6_Q1	4/9/20 6:30	4/15/20 14:30	152	38,570,000	0.49	2.35	0.85	0.21	0.05	0.23	0.93	0	0	0	0.25	0.78	0	0.10	0	0	0.07	0	0	0	5.2	6.3
2020_7_Q1	4/15/20 14:30	4/19/20 2:00	83	55,750,000	0.31	1.56	0.61	0.14	0	0.38	0.95	0	0	0	0.00	0.54	0	0	0	0	0.00	0	0	0	4.0	4.5
2020_8_Q1	4/19/20 2:00	4/22/20 13:30	83	27,900,000	0.33	1.42	0.53	0.14	0	0.15	0.70	0	0	0	0.00	0.47	0	0	0	0	0.00	0	0	0	3.3	3.8
2020_9_Q1	4/22/20 13:30	4/26/20 0:49	83	28,650,000	0.32	1.52	0.54	0.14	0	0.00	0.60	0	0	0	0.21	0.66	0	0.08	0	0	0.00	0	0	0	3.2	4.1
2020_10_Q1	4/26/20 0:49	4/29/20 11:49	83	22,890,000	0.30	1.35	0.55	0.13	0	0.00	0.53	0	0	0	0.30	0.62	0	0.09	0	0	0.05	0	0	0	2.9	3.9
2020_11_Q1	4/29/20 11:49	4/30/20 9:49	22	7,260,000	0.09	0.30	0.14	0.03	0	0.00	0.17	0	0	0	0.12	0.16	0	0.03	0	0	0.03	0	0	0	0.8	1.1
2020_12_Q1	4/30/20 9:49	5/3/20 1:00	63	55,520,000	0.67	1.50	0.89	0.19	0	0.00	1.33	0	0	0	1.11	1.00	0	0.18	0	0	0.33	0	0	0	4.8	7.2
2020_13_Q1	5/3/20 1:00	5/6/20 12:00	83	72,980,000	0.45	1.31	0.72	0.15	0	0.00	1.09	0	0	0	0.80	0.88	0	0	0	0	0.00	0	0	0	3.7	5.4
2020_14_Q1	5/6/20 12:00	5/9/20 23:49	84	44,990,000	0.42	1.53	0.63	0.17	0	0.00	0.81	0	0	0	0.58	0.67	0	0.10	0	0	0.12	0	0	0	3.7	5.0
2020_1_Q2	5/9/20 23:49	5/13/20 9:49	82	16,000,000	0.21	1.10	0.43	0.11	0	0.00	0.35	0	0	0	0.19	0.54	0	0.05	0	0	0.08	0	0	0	2.3	3.1
2020_2_Q2	5/13/20 9:49	5/16/20 20:49	83	11,800,000	0.22	1.11	0.44	0.10	0	0.00	0.32	0	0	0	0.18	0.55	0	0.05	0	0	0.07	0	0	0	2.3	3.1
2020_3_Q2	5/16/20 20:49	5/17/20 11:30	15	1,890,000	0.05	0.23	0.08	0.02	0	0.00	0.06	0	0	0	0.03	0.10	0	0.01	0	0	0.02	0	0	0	0.5	0.6
2020_4_Q2	5/17/20 11:30	5/18/20 11:30	24	2,980,000	0.07	0.28	0.11	0.03	0	0.00	0.09	0	0	0	0.05	0.14	0	0.01	0	0	0.02	0	0	0	0.6	0.8
2020_5_Q2	5/18/20 11:30	5/20/20 8:49	45	6,150,000	0.15	0.74	0.28	0.06	0	0.00	0.20	0	0	0	0.09	0.33	0	0.02	0	0	0.05	0	0	0	1.6	2.1
2020_6_Q2	5/20/20 8:49	5/25/20 10:15	121	216,310,000	2.92	12.98	5.10	1.08	0	0.00	3.46	2	0	0	1.62	6.21	0	0.41	0	0	1.09	0	0	0	29	37.6
2020_7_Q2	5/25/20 10:15	5/29/20 9:10	95	171,450,000	0.56	0.00	0.75	0.00	0	0.00	0.00	0	0	0	0.00	0.29	0	0.00	0	0	0.17	0	0	0	1.3	1.8
2020_8_Q2	5/29/20 9:10	6/1/20 14:25	77	171,920,000	0.39	0.52	0.83	0.00	0	0.00	0.00	0	0	0	0.22	0.25	0	0.00	0	0	0.00	0	0	0	1.7	2.2
2020_9_Q2	6/1/20 14:25	6/5/20 11:06	93	172,660,000	0.40	1.30	0.83	0.00	0	0.00	2.33	0	0	0	0.22	0.73	0	0.00	0	0	0.00	0	0	0	4.9	5.8
2020_10_Q2	6/5/20 11:06	6/8/20 22:06	83	104,410,000	0.68	1.02	0.87	0.00	0	0.00	1.78	0	0	0	0.62	0.75	0	0.00	0	0	0.00	0	0	0	4.7	6.1
2020_11_Q2	6/8/20 22:06	6/12/20 9:06	83	58,110,000	0.58	0.99	0.76	0.20	0	0.00	1.45	0	0	0	0.49	0.53	0	0.00	0	0	0.22	0	0	0	4.2	5.4
2020_12_Q2	6/12/20 9:06	6/15/20 20:06	83	58,710,000	0.88	0.82	0.76	0.18	0	0.00	1.59	0	0	0	0.28	0.47	0	0.00	0	0	0.00	0	0	0	4.4	5.2
2020_13_Q2	6/15/20 20:06	6/19/20 7:06	83	88,880,000	1.42	0.98	1.60	0.34	0	0.00	3.20	0	0	0	0.45	0.64	0	0.00	0	0	0.00	0	0	0	8.0	9.1
2020_14_Q2	6/19/20 7:06	6/22/20 18:06	83	120,130,000	0.70	0.59	0.96	0.00	0	0.00	2.52	0	0	0	0.67	0.49	0	0.00	0	0	0.00	0	0	0	4.8	5.9
2020_15_Q2	6/22/20 18:06	6/26/20 5:06	83	70,460,000	0.70	2.11	0.92	0.20	0	0.00	1.41	0	0	0	0.78	0.85	0	0.00	0	0	0.25	0	0	0	5.6	7.4
2020_16_Q2	6/26/20 5:06	6/29/20 16:06	83	36,710,000	0.55	1.80	0.66	0.15	0	0.00	0.95	0	0	0	0.55	0.62	0	0.09	0	0	0.18	0	0	0	4.4	5.7
Totals			**2247**	**1,823,140,000**	**15.2**	**46.3**	**23.2**	**4.2**	**0.1**	**0.9**	**29.7**	**2.0**	**0.0**	**0.0**	**10.6**	**21.5**	**0.0**	**1.4**	**0.0**	**0.0**	**3.0**	**0.0**	**0.0**	**0.0**	**126**	**161**

Notes:

1 - Concentration values across intervals are not summed, rather mass loads across intervals are summed.

2 - Start and end times are adjusted based on sampling times ± one hour to account for the total flow of the Cape Fear River.

3 - Weighting factor was calculated by dividing the proportion of time a sample had in common with the interval by the sum of the proportion of time both samples had in common with the interval.

4 - The weighted concentration was calculated by multiplying the concentration of both sample A and B by their weighting factors before summing the products.
When one of the samples had a concentration below reporting limit, only the sample with a concentration above the reporting limit was used in the calculation without using the weighting factor.

5 - The calculated mass load is a product of weighted concentration and total river flow.

TABLE 13
SUMMARY OF MASS DISCHARGE AT TAR HEEL FERRY ROAD BRIDGE
Chemours Fayetteville Works, North Carolina

Location ID	Field Sample ID	Collection Date	Hours composited[1]	Total Table 3+ (ng/L) (17 compounds)	Total Table 3+ (ng/L) (20 compounds)	Total Volume[2] (m^3)	Mass Discharge (mg/s) (Total Table 3+ 17 Compounds)	Mass Discharge (mg/s) (Total Table 3+ 20 Compounds)
TARHEEL	FAY-CFR-TARHEEL-021420	2/14/2020	0	25	35	0	13	18
TARHEEL	CAP1Q20-TARHEEL-032720	3/26/2020	0	150	190	0	35	44
CFR-TARHEEL	CFR-TARHEEL-83-033120	3/31/20 12:00	83	52	63	90,537,000	16	19
CFR-TARHEEL	CFR-TARHEEL-83-033120-D	3/31/20 12:00	83	56	65	90,537,000	17	20
CFR-TARHEEL	CFR-TARHEEL-48-040220	4/2/20 13:00	48	86	110	27,145,000	14	17
TARHEEL	CAP1Q20-CFR-TARHEEL-040220	4/2/20 15:45	0	91	130	0	12	18
CFR-TARHEEL	CAP1Q20-CFR-TARHEEL-24-040320	4/3/20 15:00	24	120	160	9,059,500	13	16
CFR-TARHEEL	CFR-TARHEEL-83-040620	4/6/20 0:30	83	130	160	24,943,000	11	13
CFR-TARHEEL	CFR-TARHEEL-79-040920	4/9/20 6:30	79	200	250	16,692,000	12	14
CFR-TARHEEL	CFR-TARHEEL-83-041920	4/19/20 1:30	83	71	81	55,521,000	13	15
CFR-TARHEEL	CFR-TARHEEL-83-042220	4/22/20 13:30	83	120	130	27,679,000	11	12
CFR-TARHEEL	CFR-TARHEEL-83-042620	4/26/20 0:49	83	110	140	28,492,000	11	14
CFR-TARHEEL	CFR-TARHEEL-83-042920	4/29/20 11:49	83	130	170	22,889,000	9.9	13
CFR-TARHEEL	CFR-TARHEEL-62-050220	5/2/20 23:49	62	86	130	54,164,000	21	31
CFR-TARHEEL	CFR-TARHEEL-83-050620	5/6/20 11:49	83	51	74	72,975,000	12	18
CFR-TARHEEL	CFR-TARHEEL-83-051120	5/9/20 11:49	83	82	110	49,716,000	14	19
CFR-TARHEEL	CFR-TARHEEL-83-051320	5/13/20 9:49	83	140	190	16,295,000	7.8	11
CFR-TARHEEL	CAP2Q20-CFR-TARHEEL-051420	5/14/20 8:55	0	200	270	0	8.7	12
CFR-TARHEEL	CAP2Q20-TARHEEL-24-051420	5/14/20 20:50	24	190	250	3,642,800	7.9	11
CFR-TARHEEL	CFR-TARHEEL-83-051620	5/16/20 19:49	83	190	260	11,836,000	7.6	10
CFR-TARHEEL	CFR-TARHEEL-83-052020	5/20/20 8:49	83	260	340	10,892,000	9.5	12
CFR-TARHEEL	CFR-TARHEEL-052520	5/25/20 10:15	0	4.2	9.6	0	2.8	6.4
CFR-TARHEEL	CFR-TARHEEL-052920	5/29/20 9:10	0	11	11	0	4.8	4.8
CFR-TARHEEL	CFR-TARHEEL-060120	6/1/20 14:25	0	9.2	15	0	6	9.9
CFR-TARHEEL	CFR-TARHEEL-060120-D	6/1/20 14:25	0	11	13	0	7.2	8.5
CFR-TARHEEL	CFR-TARHEEL-060520	6/5/20 10:55	0	47	53	0	20	22
CFR-TARHEEL	CFR-TARHEEL-39-060820	6/8/20 21:06	82	45	58	103,370,000	16	20
CFR-TARHEEL	CFR-TARHEEL-83-061220	6/12/20 8:06	82	72	93	57,424,000	14	18
CFR-TARHEEL	CFR-TARHEEL-83-061520	6/15/20 19:06	82	75	88	58,162,000	15	17
CFR-TARHEEL	CFR-TARHEEL-83-061920	6/19/20 6:06	82	90	100	87,694,000	27	30
CFR-TARHEEL	CFR-TARHEEL-83-062220	6/22/20 17:06	82	40	49	118,770,000	16	20
CFR-TARHEEL	CFR-TARHEEL-83-062620	6/26/20 4:06	82	79	110	69,784,000	19	25
CFR-TARHEEL	CFR-TARHEEL-83-062920	6/29/20 15:06	82	120	160	36,416,000	15	19

Notes:

1 - Samples with a composting duration of zero (0) hours are grab samples.
2 - Total flow volume is determined based on measurements taken over the sample collection period.
ng/L - nanograms per liter
m^3 - cubic meters
mg/s - milligrams per second

TABLE 14
PFAS MASS LOADING MODEL POTENTIAL PATHWAYS
Chemours Fayetteville Works, North Carolina

Transport Pathway Number	Potential PFAS Transport Pathway	Analytical Data Source for Mass Loading Model[1]	Flow Data Source for Mass Loading Model[1]
1	Upstream River and Groundwater	Measured from Cape Fear River Mile 76 sample collected in May 2020 as reported in Table 8.	Measured flow rates from USGS gauging station at W.O. Huske Dam during May 2020 volumetrically adjusted for flow pathways between River Mile 76 and W.O. Huske Dam[2].
2	Willis Creek	Measured from Willis Creek sample collected in May 2020 as reported in Table 8.	Measured flow rates through point velocity method during May 2020 as reported in Appendix C.
3	Aerial Deposition on River	Estimated from air deposition modeling[3].	Estimated from air deposition modeling[3].
4	Outfall 002	Measured from Outfall 002 sample collected in May 2020 as reported in Table 8.	Measured daily Outfall 002 flow rates recorded in Facility discharge monitoring reports, summarized in Appendix C.
5	Onsite Groundwater	Measured from monitoring well samples collected in February 2020 as reported in Table 10.	Estimated as the sum of the mass flux from the Black Creek Aquifer calculated from a transect along the Cape Fear River. Further details and supporting calculations provided in Appendix F.
6	Seeps	Measured from Seeps A, B, C, and D samples collected in May 2020 as reported in Table 8.	Measured flow rates through flumes during May 2020 as reported in Appendix C.
7	Old Outfall 002	Measured from Old Outfall 002 sample collected in May 2020 as reported in Table 8.	Measured flow rates through flumes during May 2020 as reported in Appendix C.
8	Adjacent and Downstream Groundwater	Estimated using a scaling factor applied to upstream mass discharge. See Section 7.2.6 for details.	Estimated using a scaling factor applied to upstream mass discharge. See Appendix I for details.
9	Georgia Branch Creek	Measured from Georgia Branch Creek sample collected in May 2020 as reported in Table 8.	Measured flow rates through point velocity method during May 2020 as reported in Appendix C.

Notes:

1 - Flow and concentration data are multiplied together to estimate the PFAS mass discharge in the Cape Fear River originating from each pathway.

2 - Cape Fear River flow rates measured at USGS gauging station #02105500 located at William O Huske Lock & Dam accessed from https://waterdata.usgs.gov on 2020-05-20 at 14:59:08 EDT.

3 - ERM, 2018. Modeling Report: HFPO-DA Atmospheric Deposition and Screening Groundwater Effects. 27 April 2018.

TABLE 15
ESTIMATED 2020 QUARTER 2 EVENT TABLE 3+ PFAS MASS DISCHARGE BY PATHWAY
Chemours Fayetteville Works, North Carolina

Pathway Number[1]	1	2	4	5	
Pathway Name	**Upstream River Water and Groundwater**	**Willis Creek**	**Outfall 002[3]**	**Onsite Groundwater - Lower Bound[4]**	**Onsite Groundwater - Upper Bound[4]**
Flow (MG)	**1091**	**5.1**	**22**	**--**	**--**
Instantaneous Flow (ft3/sec)	**--**	**--**	**--**	**--**	**--**
Program	**CAP SW Sampling 2Q20**	**CAP SW SAMPLING 2Q20**	**CAP SW SAMPLING 2Q20**		
Location ID	**CFR-MILE-76**	**WC-1**	**OUTFALL 002**	**--**	**--**
Field Sample ID	**CAP2Q20-CFR-RM-76-051320**	**CAP2Q20-WC-1-24-051420**	**CAP2Q20-OUTFALL 002-24-051420**	**--**	**--**
Sample Date and Time[2]	**5/13/20 8:20**	**5/14/20 9:20**	**5/14/20 10:17**	**--**	**--**
Sample Delivery Group (SDG)	**320-60921-1**	**410-2519-1**	**410-2521-1**		
Lab Sample ID	**320-60921-1**	**410-2519-5**	**410-2521-1**		
Sample Type	**Grab**	**24-Hour Composite**	**24-Hour Composite**	**--**	**--**
Table 3+ Lab SOP Mass Discharge[6] (mg/s)					
Hfpo Dimer Acid	ND	**0.091**	**0.083**	**0.035**	**0.378**
PFMOAA	ND	**0.218**	**0.016**	**0.250**	**2.82**
PFO2HxA	ND	**0.089**	**0.009**	**0.073**	**0.797**
PFO3OA	ND	**0.013**	**0.001**	**0.021**	**0.256**
PFO4DA	ND	**0.003**	ND	**0.008**	**0.127**
PFO5DA	ND	ND	ND	**0.002**	**0.030**
PMPA	**1.29**	**0.122**	**0.006**	**0.023**	**0.258**
PEPA	ND	**0.027**	ND	**0.006**	**0.072**
PS Acid	ND	ND	ND	**0.000**	**0.007**
Hydro-PS Acid	ND	**0.002**	ND	**0.001**	**0.013**
R-PSDA	**1.10**	**0.016**	**0.000**	**0.002**	**0.023**
Hydrolyzed PSDA	**0.096**	**0.096**	**0.105**	**0.003**	**0.034**
R-PSDCA	ND	ND	ND	**0.000**	**0.001**
NVHOS	**0.182**	**0.003**	**0.001**	**0.002**	**0.027**
EVE Acid	ND	ND	ND	**0.000**	**0.001**
Hydro-EVE Acid	ND	**0.001**	ND	**0.001**	**0.009**
R-EVE	ND	**0.010**	**0.002**	**0.001**	**0.014**
PES	ND	ND	ND	ND	ND
PFECA B	ND	ND	ND	ND	ND
PFECA-G	ND	ND	ND	ND	ND
Total Table 3+ Mass Discharge (17 compounds)[7]	ND	ND	ND	**0.37**	**3.90**
Total Table 3+ Mass Discharge (20 Compounds)[7]	ND	ND	ND	**0.37**	**4.00**

TABLE 15
ESTIMATED 2020 QUARTER 2 EVENT TABLE 3+ PFAS MASS DISCHARGE BY PATHWAY
Chemours Fayetteville Works, North Carolina

Pathway Number[1]	6A	6B	6C	6D	7
Pathway Name	Seep A	Seep B	Seep C	Seep D	Old Outfall 002
Flow (MG)	0.24	0.21	0.07	0.21	0.89
Instantaneous Flow (ft3/sec)	--	--	--	--	--
Program	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20	CAP SW SAMPLING 2Q20
Location ID	SEEP-A	SEEP-B	SEEP-C	SEEP-D	OLDOF-1
Field Sample ID	CAP2Q20-SEEP-A-24-051420	CAP2Q20-SEEP-B-24-051420	CAP2Q20-SEEP-C-24-051420	CAP2Q20-SEEP-D-24-051420	CAP2Q20-OLDOF-1-24-051420
Sample Date and Time[2]	5/14/20 9:45	5/14/20 10:25	5/14/20 10:35	5/14/20 10:55	5/14/20 11:30
Sample Delivery Group (SDG)	410-2519-1	410-2519-1	410-2519-1	410-2519-1	410-2521-1
Lab Sample ID	410-2519-1	410-2519-2	410-2519-3	410-2519-4	410-2521-2
Sample Type	24-Hour Composite	24-Hour Composite	24-Hour Composite	24-Hour Composite	24-Hour Composite
Table 3+ Lab SOP Mass Discharge[6] (mg/s)					
Hfpo Dimer Acid	**0.332**	**0.202**	**0.124**	**0.236**	**0.363**
PFMOAA	**1.24**	**1.74**	**0.652**	**0.906**	**3.08**
PFO2HxA	**0.518**	**0.412**	**0.199**	**0.263**	**0.780**
PFO3OA	**0.166**	**0.078**	**0.052**	**0.063**	**0.195**
PFO4DA	**0.093**	**0.010**	**0.011**	**0.017**	**0.066**
PFO5DA	**0.041**	**0.001**	**0.000**	**0.001**	**0.023**
PMPA	**0.207**	**0.275**	**0.042**	**0.069**	**0.265**
PEPA	**0.078**	**0.092**	**0.013**	**0.021**	ND
PS Acid	**0.065**	**0.010**	ND	ND	**0.020**
Hydro-PS Acid	**0.017**	**0.005**	**0.001**	**0.003**	**0.015**
R-PSDA	**0.031**	**0.032**	**0.006**	**0.010**	**0.013**
Hydrolyzed PSDA	**0.383**	**0.284**	**0.011**	**0.023**	**0.082**
R-PSDCA	**0.001**	**0.000**	**0.000**	ND	ND
NVHOS	**0.013**	**0.019**	**0.006**	**0.008**	**0.034**
EVE Acid	**0.011**	**0.015**	ND	ND	ND
Hydro-EVE Acid	**0.020**	**0.012**	**0.006**	**0.010**	**0.009**
R-EVE	**0.016**	**0.019**	**0.007**	**0.011**	**0.009**
PES	ND	ND	ND	ND	ND
PFECA B	ND	ND	ND	ND	ND
PFECA-G	ND	ND	ND	ND	ND
Total Table 3+ Mass Discharge (17 compounds)[7]	ND	ND	ND	ND	ND
Total Table 3+ Mass Discharge (20 Compounds)[7]	ND	ND	ND	ND	ND

TABLE 15
ESTIMATED 2020 QUARTER 2 EVENT TABLE 3+ PFAS MASS DISCHARGE BY PATHWAY
Chemours Fayetteville Works, North Carolina

Pathway Number[1]	**9**	**Sum of All Pathways - Lower Bound**	**Sum of All Pathways - Upper Bound**	**--**
Pathway Name	**Georgia Branch Creek**			**Tar Heel Ferry Road Bridge**
Flow (MG)	**7.6**			960
Instantaneous Flow (ft3/sec)	**--**			**--**
Program	**CAP SW Sampling 2Q20**			**CAP SW SAMPLING 2Q20**
Location ID	**GBC-1**			**TARHEEL**
Field Sample ID	**CAP2Q20-GBC-1-051320**			**CAP2Q20-TARHEEL-24-051420**
Sample Date and Time[2]	**5/13/20 13:55**			**5/14/20 20:50**
Sample Delivery Group (SDG)	**320-60920-1**			**410-2521-1**
Lab Sample ID	**320-60920-5**			**410-2521-4**
Sample Type	**24-Hour Composite**			**24-Hour Composite**
Table 3+ Lab SOP Mass Discharge[6] (mg/s)				
Hfpo Dimer Acid	**0.150**	**1.61**	**1.96**	**0.967**
PFMOAA	**0.037**	**8.14**	**10.7**	**3.70**
PFO2HxA	**0.107**	**2.45**	**3.17**	**1.39**
PFO3OA	**0.017**	**0.606**	**0.841**	**0.362**
PFO4DA	**0.005**	**0.213**	**0.332**	**0.105**
PFO5DA	ND	**0.068**	**0.097**	ND
PMPA	**0.260**	**1.27**	**1.50**	**1.178**
PEPA	**0.067**	**0.302**	**0.368**	ND
PS Acid	ND	**0.096**	**0.102**	ND
Hydro-PS Acid	**0.009**	**0.052**	**0.064**	ND
R-PSDA	**0.043**	**0.154**	**0.174**	**0.673**
Hydrolyzed PSDA	ND	**0.987**	**1.02**	**1.93**
R-PSDCA	ND	**0.001**	**0.002**	ND
NVHOS	**0.001**	**0.088**	**0.113**	**0.202**
EVE Acid	ND	**0.026**	**0.027**	ND
Hydro-EVE Acid	ND	**0.058**	**0.066**	ND
R-EVE	**0.014**	**0.089**	**0.101**	**0.206**
PES	ND	**0.000**	**0.000**	ND
PFECA B	ND	**0.000**	**0.000**	ND
PFECA-G	ND	**0.000**	**0.000**	ND
Total Table 3+ Mass Discharge (17 compounds)[7]	ND	**0.37**	**3.90**	ND
Total Table 3+ Mass Discharge (20 Compounds)[7]	ND	**0.37**	**4.00**	ND

TABLE 15
ESTIMATED 2020 QUARTER 2 EVENT TABLE 3+ PFAS MASS DISCHARGE BY PATHWAY
Chemours Fayetteville Works, North Carolina

Pathway Number[1]	**--**	**--**	**--**
Pathway Name	**Tar Heel Ferry Road Bridge[5]**	**Bladen Bluff[5]**	**Kings Bluff[5]**
Flow (MG)	--	--	--
Instantaneous Flow (ft3/sec)	1,540	1,680	1670
Program	**CAP SW Sampling 2Q20**	**CAP SW Sampling 2Q20**	**CAP SW SAMPLING 2Q20**
Location ID	**TARHEEL**	**CFR-BLADEN**	**CFR-KINGS**
Field Sample ID	**CAP2Q20-CFR-TARHEEL-051420**	**CAP2Q20-CFR-BLADEN-051320**	**CAP2Q20-CFR-KINGS-051920**
Sample Date and Time[2]	**5/14/20 8:55**	**5/13/20 18:15**	**5/19/20 9:25**
Sample Delivery Group (SDG)	**320-60921-1**	**320-60920-1**	**410-2520-1**
Lab Sample ID	**320-60921-3**	**320-60920-6**	**410-2520-1**
Sample Type	**Grab**	**Grab**	**Grab**
Table 3+ Lab SOP Mass Discharge[6] (mg/s)			
Hfpo Dimer Acid	**1.05**	**1.19**	**0.851**
PFMOAA	**3.27**	**3.76**	**3.55**
PFO2HxA	**1.48**	**1.67**	**1.32**
PFO3OA	**0.388**	**0.457**	**0.326**
PFO4DA	**0.105**	**0.147**	**0.099**
PFO5DA	ND	ND	ND
PMPA	**2.14**	**2.43**	**1.09**
PEPA	ND	ND	ND
PS Acid	ND	ND	ND
Hydro-PS Acid	ND	ND	ND
R-PSDA	**1.44**	**1.43**	**0.804**
Hydrolyzed PSDA	**1.31**	**1.52**	**1.47**
R-PSDCA	ND	ND	ND
NVHOS	**0.201**	**0.195**	**0.151**
EVE Acid	ND	ND	ND
Hydro-EVE Acid	ND	ND	ND
R-EVE	**0.244**	**0.190**	**0.567**
PES	ND	ND	ND
PFECA B	ND	ND	ND
PFECA-G	ND	ND	ND
Total Table 3+ Mass Discharge (17 compounds)[7]	ND	ND	ND
Total Table 3+ Mass Discharge (20 Compounds)[7]	ND	ND	ND

Notes:

1 - Pathway 3 (Aerial Deposition on Water Features) and Pathway 8 (Offsite Adjacent and Downstream Groundwater) are not included in this table. Loading from Pathway 3 was estimated using relative concentration ratios from offsite wells, and loading from Pathway 8 was estimated by scaling to the upstream offsite groundwater loading. Further details are provided in Appendices H and I.

2 - For composite samples, the end of the composite sample time period is listed as the sample date and time.

3 - Total Table 3+ concentrations at the Intake River Water at the Facility are subtracted from Outfall 002 concentrations to compute the mass discharge at Outfall 002.

4 - Mass discharge for Onsite Groundwater (Pathway 5) is determined using calculations described in Appendix H. The lower and upper bounds on the mass discharge was calculated using the minimum and geometric mean hydraulic conductivity in the Black Creek Aquifer as described in Appendix

5 - Mass discharge values for grab samples collected at Tar Heel Ferry Road Bridge, Bladen Bluff, and Kings Bluff are determined based on instantaneous flow rates.

6 - Mass discharge by analyte is calculated based on Table 3+ concentrations in Tables 8 and 10 and 24-hour flow volumes reported in Table 9.

7 - Total PFAS mass discharge is based on the summed Total PFAS concentrations reported in Table 8 and Table 10, which are rounded to two significant figures.

Bold - Analyte detected above associated reporting limit
SOP - Standard Operating Procedure

TABLE 16
SUMMARY OF TOTAL PFAS MASS DISCHARGE BY PATHWAY
Chemours Fayetteville Works, North Carolina

Pathway	Pathway Name	Total Flow Volume on Sample Date (MG)[1]	Total Table 3+ (17 Compounds)			
			Concentration (ng/L)	Mass Loading (mg/s)	Relative Contribution (Lower Bound)	Relative Contribution (Upper Bound)
1	Upstream River Water and Groundwater[2]	1,091.14	33	1.6	9.3%	7.7%
2	Willis Creek	5.07	2,600	0.58	3.4%	2.8%
3	Aerial Deposition on Water Features	--	--	0.01	0.03%	0.03%
4	Outfall 002[3]	22	129	0.13	0.7%	0.6%
5	Onsite Groundwater (Lower Bound)[4]	--	--	0.37	2.2%	
	Onsite Groundwater (Upper Bound)[4]	--	--	3.9		19.2%
6A	Seep A	0.24	270,000	2.80	16.5%	13.6%
6B	Seep B	0.21	310,000	2.84	16.7%	13.8%
6C	Seep C	0.07	340,000	1.11	6.5%	5.4%
6D	Seep D[3]	0.21	180,000	1.63	9.6%	7.9%
7	Old Outfall 002	0.89	120,000	4.68	27.6%	22.8%
8	Offsite Adjacent and Downstream Groundwater	--	--	0.59	3.5%	2.9%
9	Georgia Branch Creek	7.62	2,000	0.67	3.9%	3.2%
Calculated Total Loading (mg/s) at Tar Heel (Lower Bound)				**17.0**		
Calculated Total Loading (mg/s) at Tar Heel (Upper Bound)				**20.6**		
Measured Total Loading (mg/s) at Tar Heel (Composite Sample)		960	190	**8.0**		

Notes:

1 - Total flow volume is determined based on measurements taken over 24-hour sample collection period for all locations except Georgia Branch Creek and Willis Creek. At these locations, the total flow volume was estimated based on the instantaneous flow measurement.

2 - The volumetric flow rate for upstream river water and groundwater was estimated by subtracting inflows from Willis Creek, upwelling groundwater, seeps to the river, and Outfall 002 and by adding the river water intake from Chemours to the flow rate measurement from the W.O. Huske Dam.

3 - Total PFAS concentrations at the Intake River Water at Facility location are subtracted from Outfall 002 concentrations to compute the mass discharge at Outfall 002.

4 - Mass Discharge for Onsite Groundwater was determined using calculations described in Appendix F. The lower and upper bounds on the mass discharge were calculated using the minimum and geometric mean hydraulic conductivity in the Black Creek Aquifer as described in Appendix F.

TABLE 16
SUMMARY OF TOTAL PFAS MASS DISCHARGE BY PATHWAY
Chemours Fayetteville Works, North Carolina

Pathway	Pathway Name	Total Flow Volume on Sample Date (MG)[1]	Total Table 3+ (20 Compounds)			
			Concentration (ng/L)	Mass Loading (mg/s)	Relative Contribution (Lower Bound)	Relative Contribution (Upper Bound)
1	Upstream River Water and Groundwater[2]	1,091.14	58	2.8	13.8%	11.7%
2	Willis Creek	5.07	3,100	0.69	3.4%	2.9%
3	Aerial Deposition on Water Features	--	--	0.01	0.03%	0.02%
4	Outfall 002[3]	22	240	0.24	1.2%	1.0%
5	Onsite Groundwater (Lower Bound)[4]	--	--	0.37	1.9%	
	Onsite Groundwater (Upper Bound)[4]	--	--	4.0		16.8%
6A	Seep A	0.24	310,000	3.21	16.0%	13.6%
6B	Seep B	0.21	350,000	3.21	16.0%	13.5%
6C	Seep C	0.07	350,000	1.14	5.7%	4.8%
6D	Seep D[3]	0.21	180,000	1.63	8.1%	6.9%
7	Old Outfall 002	0.89	130,000	5.07	25.2%	21.4%
8	Offsite Adjacent and Downstream Groundwater	--	--	1.04	5.2%	4.4%
9	Georgia Branch Creek	7.62	2,100	0.70	3.5%	3.0%
Calculated Total Loading (mg/s) at Tar Heel (Lower Bound)				**20.1**		
Calculated Total Loading (mg/s) at Tar Heel (Upper Bound)				**23.7**		
Measured Total Loading (mg/s) at Tar Heel (Composite Sample)		960	250	**11**		

Notes:

1 - Total flow volume is determined based on measurements taken over 24-hour sample collection period for all locations except Georgia Branch Creek and Willis Creek. At these locations, the total flow volume was estimated based on the instantaneous flow measurement.

2 - The volumetric flow rate for upstream river water and groundwater was estimated by subtracting inflows from Willis Creek, upwelling groundwater, seeps to the river, and Outfall 002 and by adding the river water intake from Chemours to the flow rate measurement from the W.O. Huske Dam.

3 - Total PFAS concentrations at the Intake River Water at Facility location are subtracted from Outfall 002 concentrations to compute the mass discharge at Outfall 002.

4 - Mass Discharge for Onsite Groundwater was determined using calculations described in Appendix F. The lower and upper bounds on the mass discharge were calculated using the minimum and geometric mean hydraulic conductivity in the Black Creek Aquifer as described in Appendix F.

TABLE 17
CAPE FEAR RIVER TOTAL PFAS RELATIVE MASS DISCHRAGE PER PATHWAY
Chemours Fayetteville Works, North Carolina

Pathway	Q1 2020 (April 2020) (dry)[1]			
	Total Table 3+ (17 Compounds)		Total Table 3+ (20 Compounds)	
	Lower	Upper	Lower	Upper
[1] Upstream River Water and Groundwater	0%	0%	0%	0%
[2] Willis Creek	4%	3%	5%	3%
[3] Aerial Deposition on Water Features	<1%	<1%	<1%	<1%
[4] Outfall 002	1%	<1%	1%	1%
[5] Onsite Groundwater	5%	43%	5%	42%
[6] Seeps	56%	34%	57%	35%
[7] Old Outfall 002	30%	23%	28%	17%
[8] Offsite Adjacent and Downstream Groundwater	0%	0%	0%	0%
[9] Georgia Branch Creek	4%	2%	4%	2%

Notes:

Relative contributions per pathway are presented as a range, which represents the upper and lower bound estimates.

1 - Model estimated Total PFAS mass discharge for April 2020 is in Cape Fear River PFAS Mass Loading Assessment - First Quarter 2020 Report (Geosyntec, 2020b).

2 - Model estimated Total PFAS mass discharge for May 2020 is presented in this report.

TABLE 17
CAPE FEAR RIVER TOTAL PFAS RELATIVE MASS DISCHRAGE PER PATHWAY
Chemours Fayetteville Works, North Carolina

Pathway	Q2 2020 (May 2020) (dry)[2]			
	Total Table 3+ (17 Compounds)		Total Table 3+ (20 Compounds)	
	Lower	Upper	Lower	Upper
[1] Upstream River Water and Groundwater	9%	8%	14%	12%
[2] Willis Creek	3%	3%	3%	3%
[3] Aerial Deposition on Water Features	<1%	<1%	<1%	<1%
[4] Outfall 002	1%	1%	1%	1%
[5] Onsite Groundwater	2%	19%	2%	17%
[6] Seeps	49%	41%	46%	39%
[7] Old Outfall 002	28%	23%	25%	21%
[8] Offsite Adjacent and Downstream Groundwater	4%	3%	5%	4%
[9] Georgia Branch Creek	4%	3%	3%	3%

Notes:

Relative contributions per pathway are presented as a range, which represents the upper and lower bound estimates.

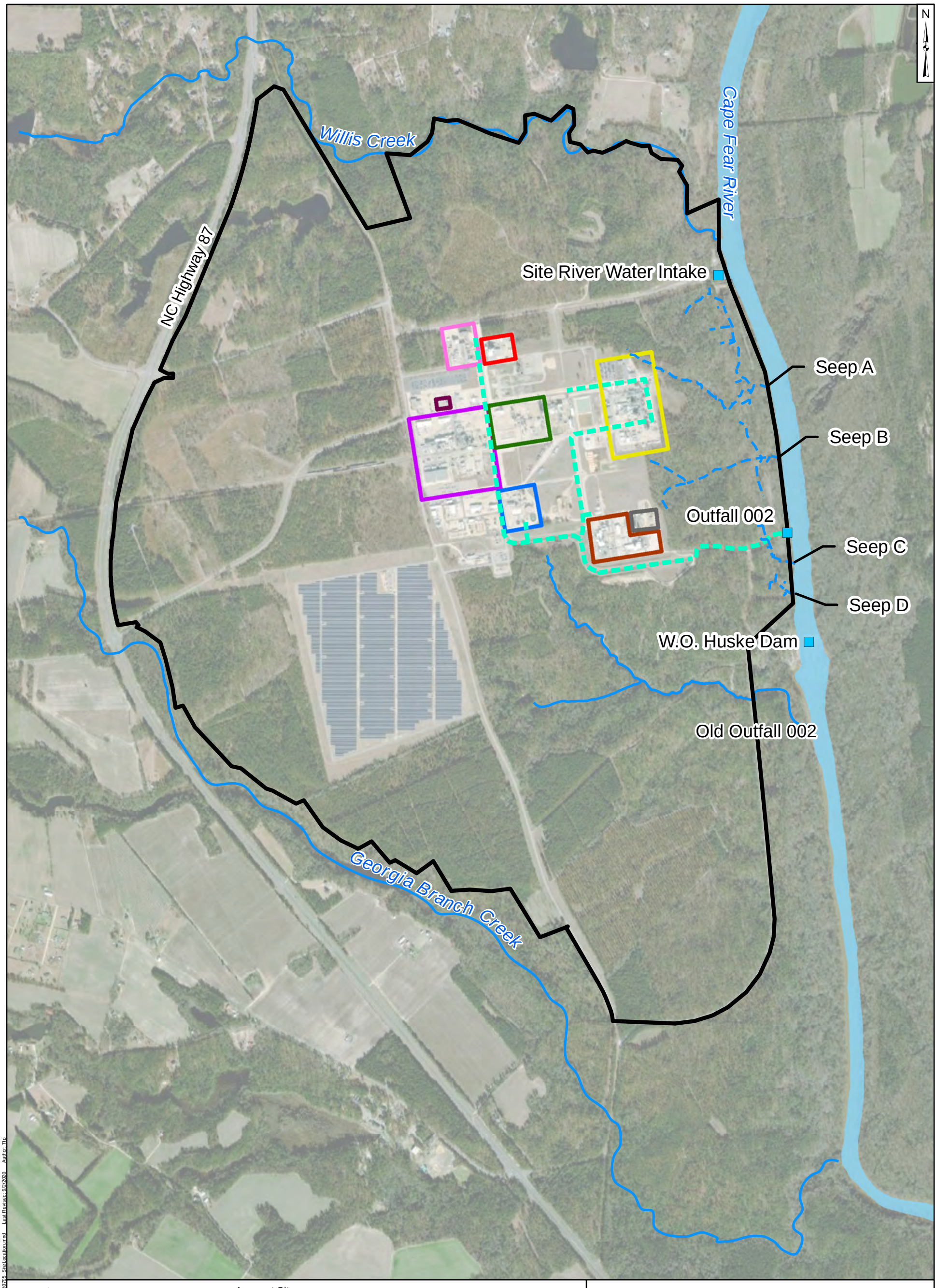
1 - Model estimated Total PFAS mass discharge for April 2020 is in Cape Fear River PFAS Mass Loading Assessment - First Quarter 2020 Report (Geosyntec, 2020b).

2 - Model estimated Total PFAS mass discharge for May 2020 is presented in this report.

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295

FIGURES



Legend

- Site Features
- Site Boundary
- Nearby Tributary
- Observed Seep (Natural Drainage)
- Site Conveyance Network

Areas at Site

- Chemours Monomers IXM
- Chemours Polymer Processing Aid Area
- DuPont Polyvinyl Fluoride Leased Area
- Former DuPont PMDF Area
- Kuraray SentryGlas® Leased Area
- Kuraray Trosifol® Leased Area
- Wastewater Treatment Plant
- Power - Filtered and Demineralized Water Production
- Kuraray Laboratory

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, DigitalGlobe, 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

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Figure 1

Path: P:\PJ\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_Site Location.mxd Last Revised: 9/2/2020 Author: Tip

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US

Virginia

North Carolina

South Carolina

Haw River

Deep River

Little River

Cape Fear River

Greensboro

Raleigh

Fayetteville

Wilmington

Start of Cape Fear River

Chemours Fayetteville Works

Tar Heel Ferry Road Bridge

W.O. Huske Dam

Bladen Bluffs Intake

Kings Bluff Intake Canal

Legend

- Chemours Fayetteville Works
- Upper Basin
- Middle Basin
- Lower Basin

Note:
Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

20 10 0 20 Miles

Cape Fear River Watershed and Downstream Drinking Water Intakes

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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Figure 2

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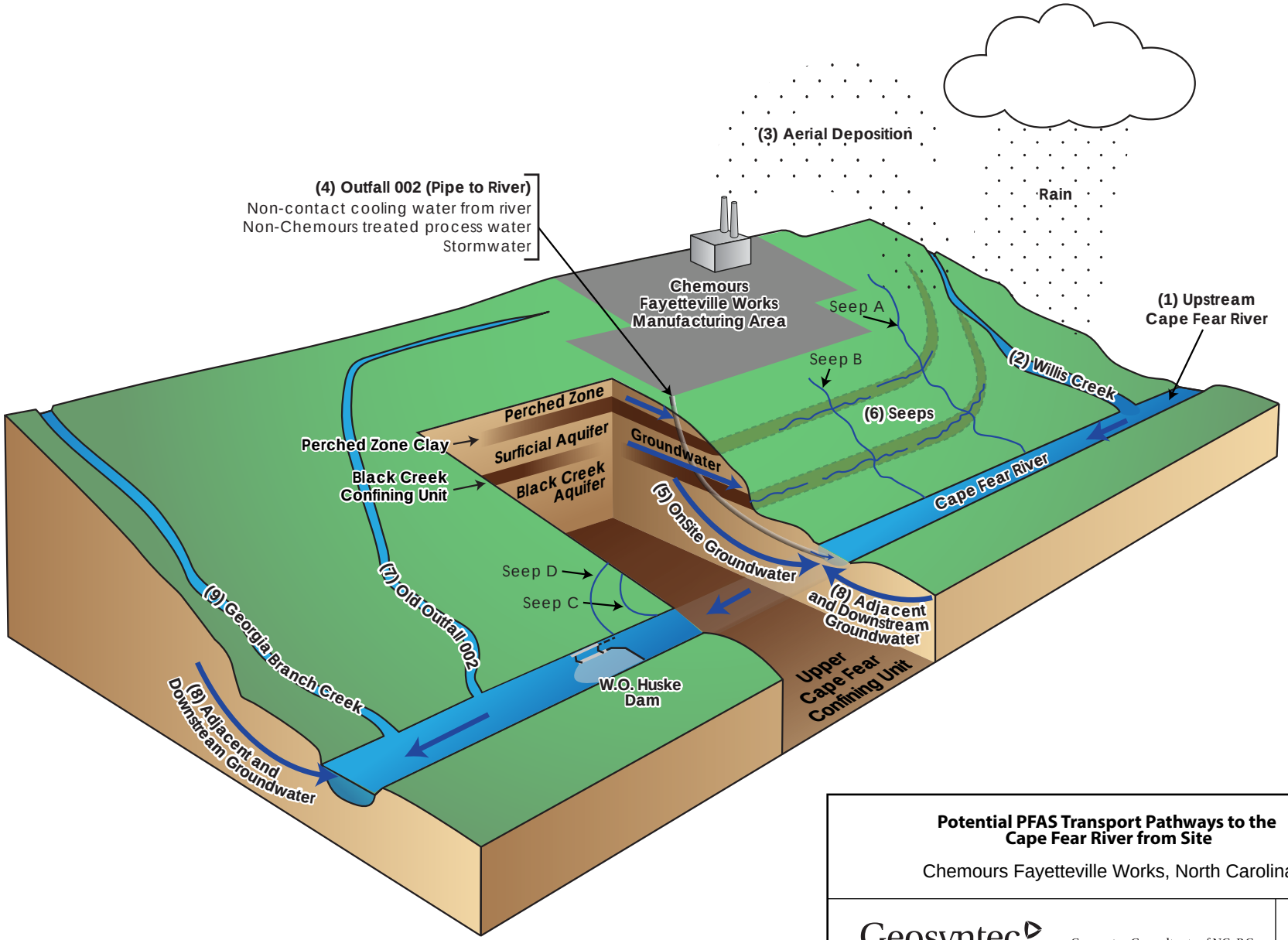
Path: P:\PR_B\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_Cape Fear River Watershed and Downstream Intakes.mxd; Tip; 09/02/2020

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US



Note: Image is conceptual and is not to scale

Potential PFAS Transport Pathways to the Cape Fear River from Site

Chemours Fayetteville Works, North Carolina

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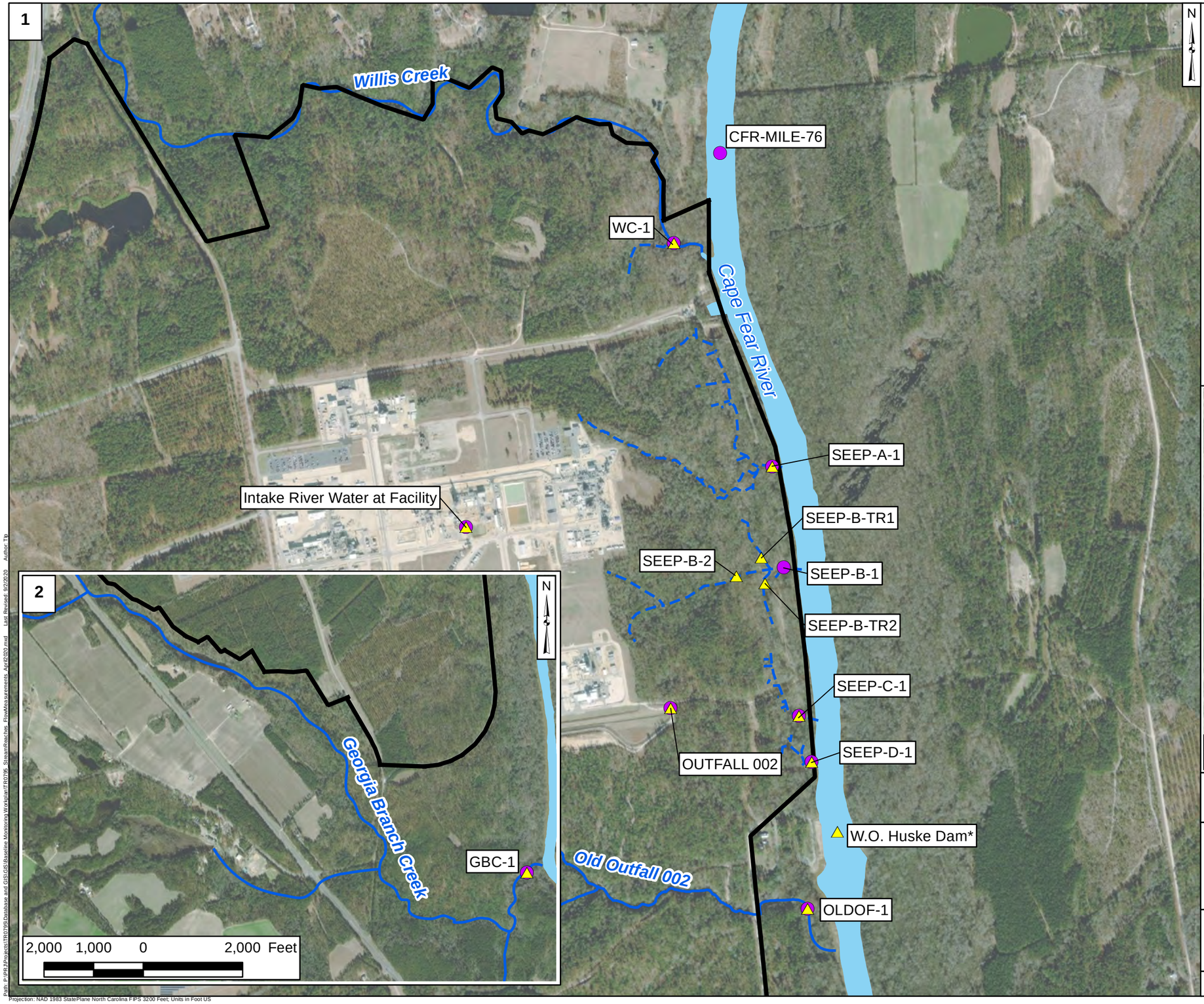
Figure 3

Data\PRJ\Projects\TR0795\Database and GIS\Illustrator\3D CSM Illustration\ConceptualSiteModel_June2020.ai



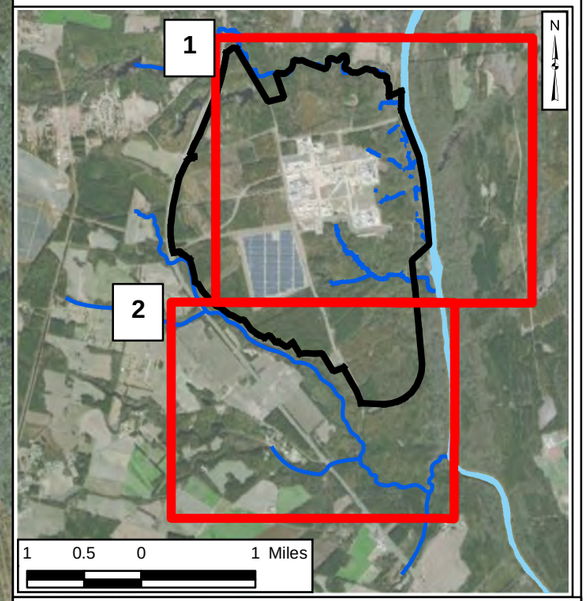
Legend

- Flow Measurement Location
- Sample Location
- Observed Seep
- Nearby Tributary
- Site Boundary

Notes:

* - Flow measurement was taken at W.O. Huske Dam - USGS Gauge Site No. 02105500

1. Flow at Old Outfall 002, Seep A, Seep B, Seep C, and Seep D locations were measured using flumes.
2. Flow at Willis Creek and Georgia Branch Creek were measured using flow velocity method.
3. Results of estimated flow at these locations are provided in Table 9 with supplemental flow measurement data included in Appendix C.
4. 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.
5. Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



1,000 500 0 1,000 Feet

Sample and Flow Measurement Locations - May 2020

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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Figure 4

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US

Path: P:\PR\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_StreamReaches_FlowMeasurements_Apr82020.mxd Last Revised: 9/2/2020 Author: Tp

1

CFR-MILE-76

CFR-BLADEN

CFR-TARHEEL

2 - Downstream

CFR-KINGS

2 1 0 2 Miles

N

Legend

Sample Location

Site Boundary

Cape Fear River

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.
2. Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

1

2

25 12.5 0 25 Miles

2 1 0 2 Miles

Cape Fear River Sample Locations - May 2020

Chemours Fayetteville Works, North Carolina

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Raleigh

September 2020

Figure

5

Path: P:\PR\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_CapeFearRiverSampleLocations_Apr02020.mxd Last Revised: 9/2/2020 Author: Tip

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US

N

SMW-10
PW-09
Willis Creek
SMW-11
SMW-12
PIW-1S
PIW-1D
PIW-3D
LTW-01
Seep A
LTW-02
LTW-03
Seep B
PZ-22
LTW-04
PIW-7D
PIW-7S
Seep C
LTW-05
Seep D
Cape Fear River
PW-04
PW-11
Old Outfall 002
PW-06
Georgia Branch Creek
PW-07
Bladen-1D

Legend

- Surficial Aquifer
- Floodplain Deposits
- Black Creek Aquifer
- Observed Seep
- Nearby Tributary
- Site Boundary

Notes:
1. 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.
2. 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.
3. 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 Monitoring Well Network

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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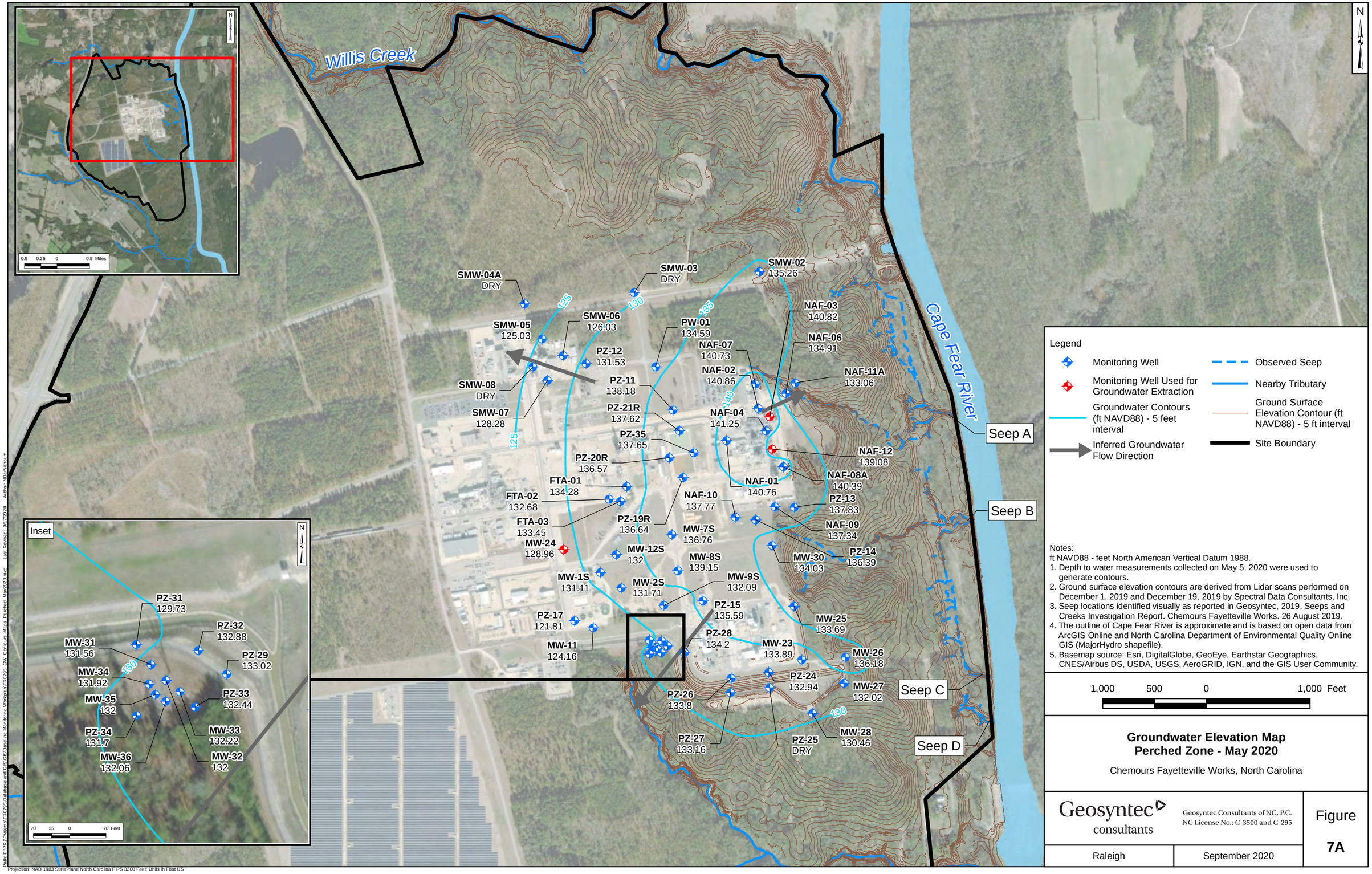
Figure 6

Path: P:\PR\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_BaselineGroundwaterMonitoringWellNetwork.mxd; Tip; 9/2/2020

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US



Notes:
ft NAVD88 - feet North American Vertical Datum 1988.
1. Depth to water measurements collected on May 5, 2020 were used to generate contours.
2. Ground surface elevation contours are derived from Lidar scans performed on December 1, 2019 and December 19, 2019 by Spectral Data Consultants, Inc.
3. Seep locations identified visually as reported in Geosyntec, 2019. Seeps and Creeks Investigation Report. Chemours Fayetteville Works. 26 August 2019.
4. 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).
5. 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 Elevation Map
Perched Zone - May 2020

Chemours Fayetteville Works, North Carolina

Geosyntec consultants
Geosyntec Consultants of NC, P.C.
NC License No.: C 3500 and C 295

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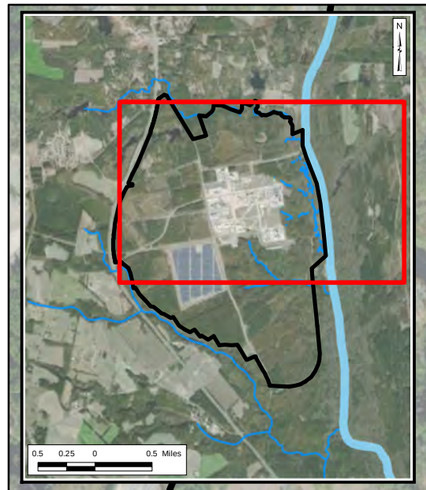
Figure **7A**

Author: NBarNahoum
Last Revised: 9/17/2020
Path: P:\PRJ\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Work\arn\TR0795_GW_Contours_Maps_Perched May2020.mxd
Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US



Willis Creek

SMW-11
58.44

INSITU-01
112.6

INSITU-02
DRY

MW-18D
87.28

MW-19D
88.31

SMW-09
84.41

MW-20D
89.21

PIW-1D
34.63

SMW-02B
DRY

PW-02
89.14

SMW-04B
101.76

MW-21D
105.17

Cape Fear River

SMW-06B
101.75

NAF-11B
94.18

SMW-08B
106.79

MW-15DRR
102.07

PIW-5S
60.68

MW-22D
111.1

MW-17D
115.69

MW-16D
111.39

NAF-08B
95.63

Seep A

Seep B

PW-03
105.95

MW-13D
103.62

MW-14D
108.73

PIW-9S
50.05

Seep C

PW-05
120.55

Seep D

SMW-01
124.03

PW-04
70.58

PIW-10S
57.96

60 70 80 90 100 110 120

N

Legend

- Monitoring Well
- Groundwater Contours (ft NAVD88) - 10 feet interval
- Potentiometric Surface Inferred
- Inferred Groundwater Flow Direction
- Observed Seep
- Nearby Tributary
- Ground Surface Elevation Contour (ft NAVD88) - 5 ft interval
- Site Boundary

Notes:
NM - Not measured
ft NAVD88 - feet North American Vertical Datum 1988.

1. Depth to water measurements collected on May 5, 2020 were used to generate contours.
2. Ground surface elevation contours are derived from Lidar scans performed on December 1, 2019 and December 19, 2019 by Spectral Data Consultants, Inc.
3. Seep locations identified visually as reported in Geosyntec, 2019. Seeps and Creeks Investigation Report. Chemours Fayetteville Works. 26 August 2019.
4. 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).
5. 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 Elevation Map
Surficial Aquifer - May 2020

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

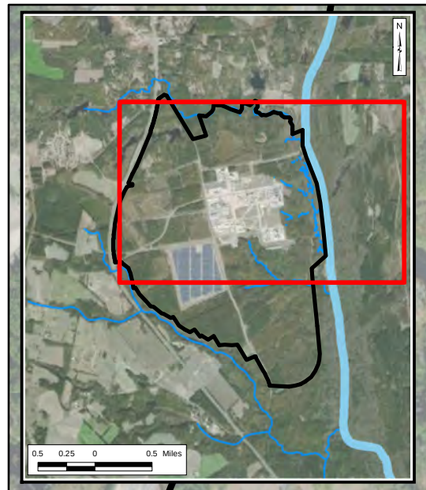
Geosyntec Consultants of NC, P.C.
NC License No.: C 3500 and C 295

Raleigh | September 2020

Figure
7B

Path: P:\PR\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_GW_Contours_Maps_Surficial_May2020.mxd Last Revised: 9/17/2020 Author: NBarNabourn

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US



Willis Creek

SMW-10 47.04
PW-09 48.05
SMW-12 34.47
PIW-1S 33.99
PIW-2D 59.46
PIW-3D 36.64
LTW-01 38.03
SMW-03B 92.55
BCA-01 86.6
PW-12 92.45
PW-15R 76.31
LTW-02 42.7
PIW-4D 42.15
BCA-03R 100.16
PW-10R 48.52
Seep A
LTW-03 40.6
PIW-6S 39.5
PW-13 116.26
Seep B
PZ-22 44.38
PW-14 86.4
LTW-04 43.36
PIW-7S 43.14
PIW-7D 43.05
LTW-05 42.72
PIW-8D 41.52
BCA-02 74.56
PIW-9D 42.47
BCA-04 120.9
Seep C
Seep D
PIW-10DR 61.33
PW-11 40.5

Cape Fear River

50 60 70 30 90 80 70 90 60 50 40

N

Legend

- Monitoring Well
- Groundwater Contours (ft NAVD88) - 10 feet interval
- Potentiometric Surface Inferred
- Inferred Groundwater Flow Direction
- Observed Seep
- Nearby Tributary
- Ground Surface Elevation Contour (ft NAVD88) - 5 ft interval
- Site Boundary

Notes:
ft NAVD88 - feet North American Vertical Datum 1988.
1. Depth to water measurements collected on May 5, 2020 were used to generate contours.
2. Ground surface elevation contours are derived from Lidar scans performed on December 1, 2019 and December 19, 2019 by Spectral Data Consultants, Inc.
3. Seep locations identified visually as reported in Geosyntec, 2019. Seeps and Creeks Investigation Report. Chemours Fayetteville Works. 26 August 2019.
4. 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).
5. 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 Elevation Map
Black Creek Aquifer - May 2020

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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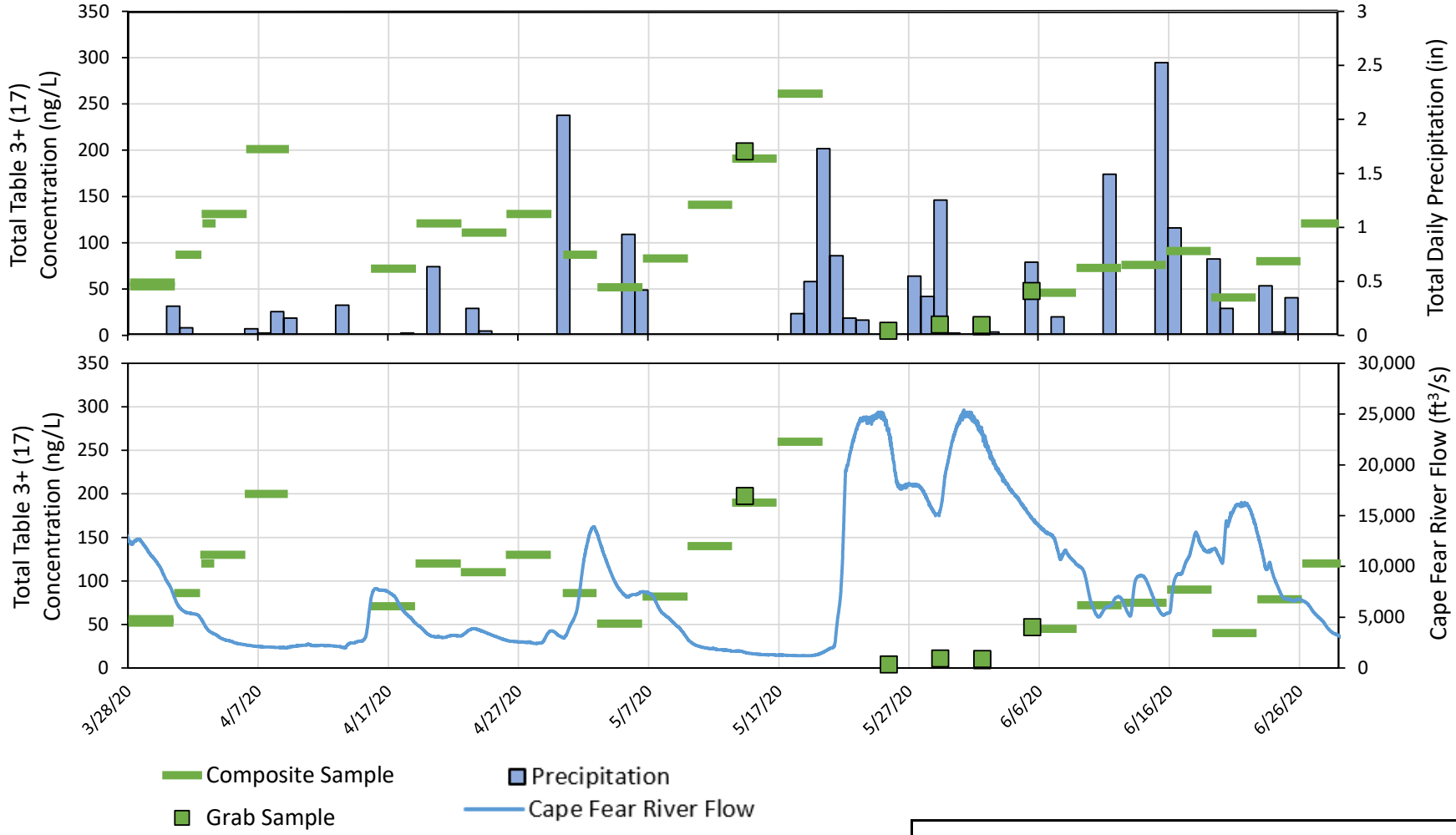
Figure **7C**

Path: P:\PRJP rojects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_GW_Contours_Maps_BlackCreek_May2020.mxd Last Revised: 9/4/2020 Author: Tip

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US



Notes:

-Total PFAS concentrations for Table 3+ (20 compounds) are provided in Table 7.

-Precipitation data are from the USGS monitoring site at the W.O. Huske Dam.

-***Abbrevations:***

in - inches

ng/L - nanograms per liter

ft^3/s - cubic feet per second

Total Table 3+ (17 Compounds) Concentrations, Precipitation and Daily Flow at Tar Heel Ferry Road Bridge

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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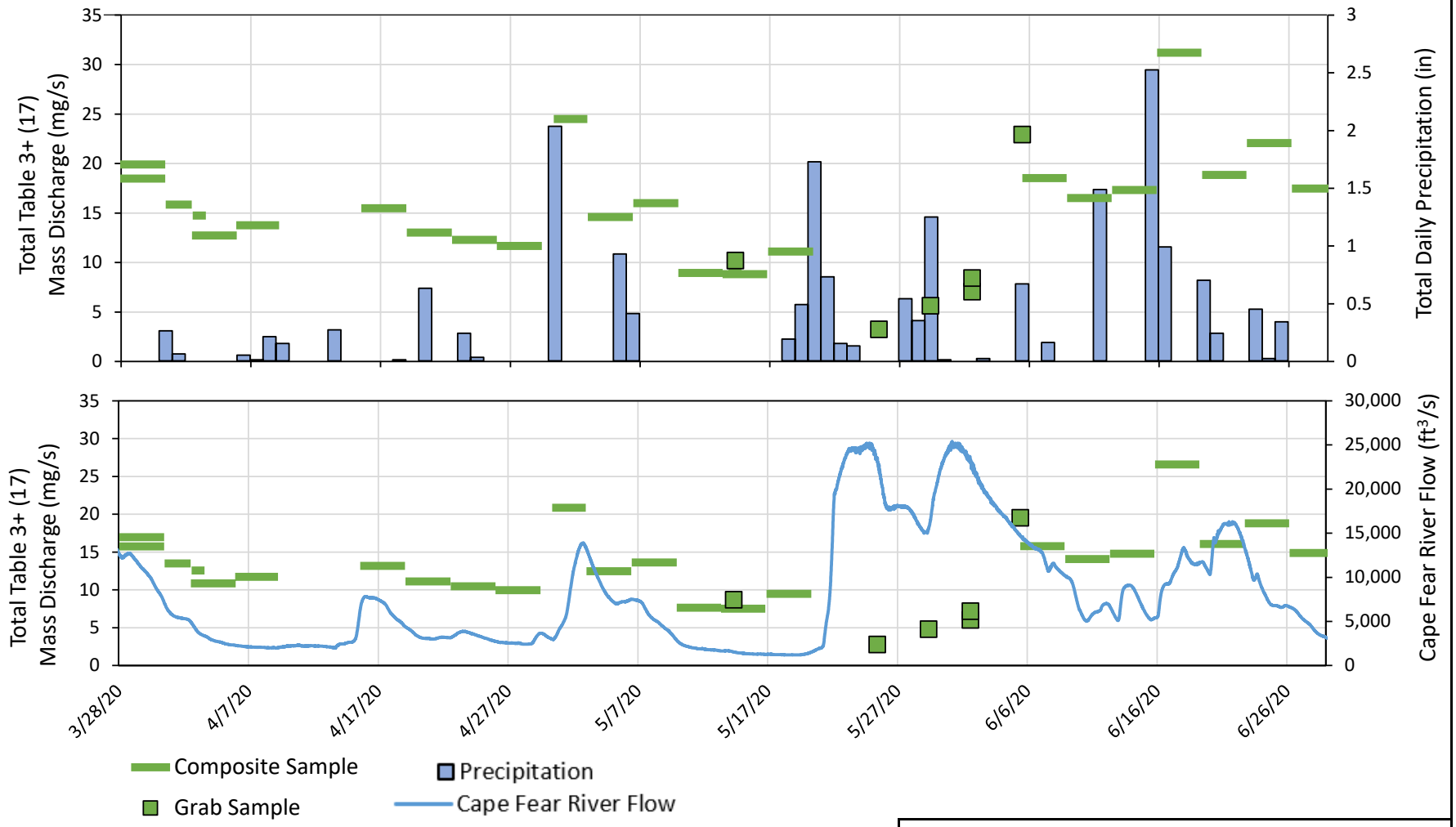
Figure 8



Notes:

-Total PFAS mass discharges calculated by summing over Table 3+ compounds (20 compounds) are provided in Table 12.

-Precipitation data are from the USGS monitoring site at the W.O. Huske Dam.

Abbrevations:

in - inches

mg/s - milligram per seconds

ft^3/s - cubic feet per seconds

Total Table 3+ (17 Compounds) Mass Discharge, Precipitation and Daily Flow at Tar Heel Ferry Road Bridge

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C 3500 and C 295

Figure 9

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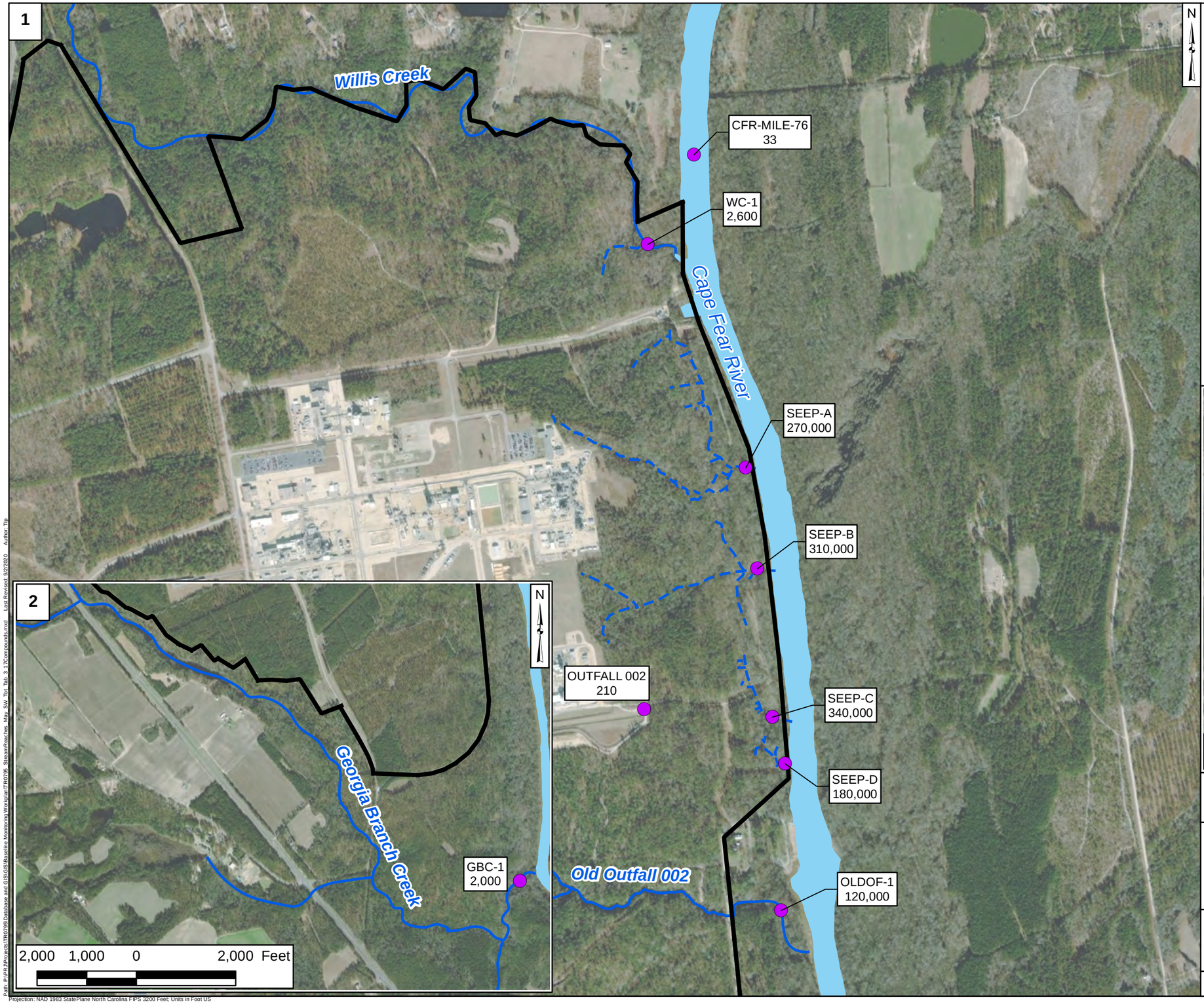

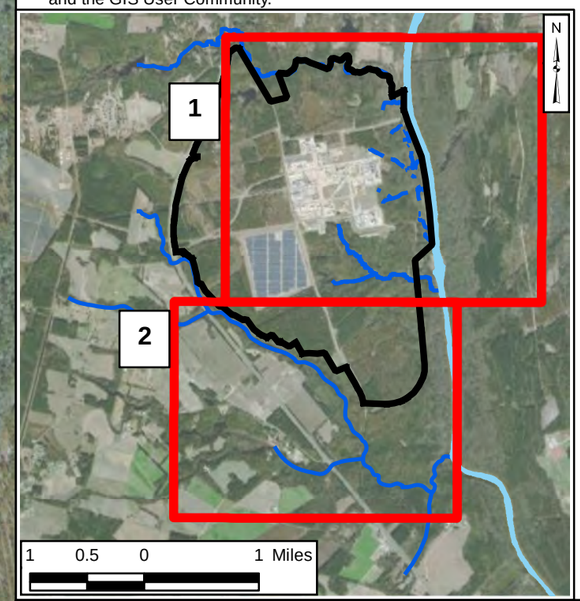

Legend

- Sample Location
- Observed Seep
- Nearby Tributary
- Site Boundary

Notes:
HFPO-DA - hexafluoropropylene oxide dimer acid

1. All results are in nanograms per liter.
2. Total table 3+ concentration includes HFPO-DA results evaluated by EPA Method 537 Mod and does not include R-PSDA, Hydrolyzed PSDA, and R-EVE.
3. Non-detect values were not included in sum of total Table 3+ results.
4. Total Table 3+ results include J-qualified data.
5. 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.
6. Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

1,000 500 0 1,000 Feet

Total Table 3+ Concentrations (17 Compounds) in Surface Water - May 2020

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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Figure **10A**

Path: P:\PR\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_StreamReaches_May_SW_Tot_Tab_3_17Compounds.mxd Last Revised: 9/2/2020 Author: Tip

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US

1

Willis Creek

CFR-MILE-76
58

WC-1
3,100

Cape Fear River

SEEP-A
310,000

SEEP-B
350,000

OUTFALL 002
350

SEEP-C
350,000

SEEP-D
180,000

OLDOF-1
130,000

Old Outfall 002

2

Georgia Branch Creek

GBC-1
2,100

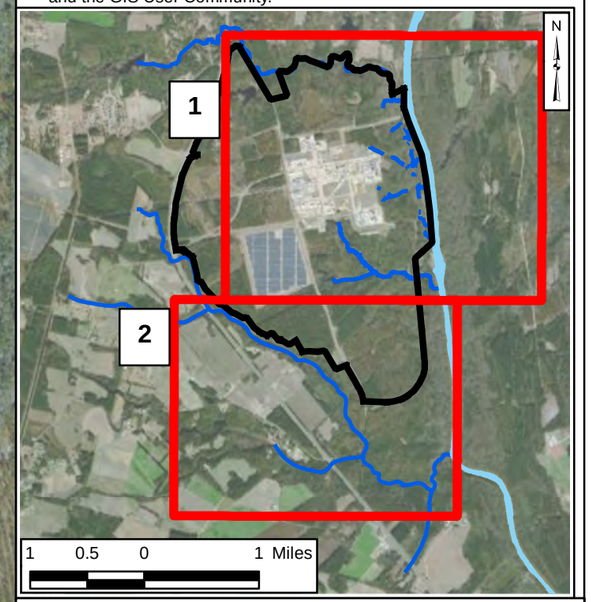
2,000 1,000 0 2,000 Feet

N

Legend

- Sample Location
- Observed Seep
- Nearby Tributary
- Site Boundary

Notes:
HFPO-DA - hexafluoropropylene oxide dimer acid
1. All results are in nanograms per liter.
2. Total table 3+ concentration is summed over all 20 compounds including R-PSDA, Hydrolyzed PSDA, and R-EVE, and includes HFPO-DA results evaluated by EPA Method 537 Mod.
3. Non-detect values were not included in sum of total Table 3+ results.
4. Total Table 3+ results include J-qualified data.
5. 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.
6. Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



1,000 500 0 1,000 Feet

Total Table 3+ Concentrations (20 Compounds) in Surface Water - May 2020

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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Figure **10B**

Path: P:\PR\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring\Workplan\TR0795_StreamReaches_May_SW_Tot_Tab_3 2\Compound1s.mxd Last Revised: 9/11/2020 Author: NBarhaihoum

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US

1

CFR-MILE-76 33

CFR-BLADEN 210

CFR-TARHEEL 200

2 - Downstream

CFR-KINGS 160

2 1 0 2 Miles

N

Legend

Sample Location

Site Boundary

Cape Fear River

Notes:
HFPO-DA - hexafluoropropylene oxide dimer acid
1. All results are in nanograms per liter.
2. Total table 3+ concentration includes HFPO-DA results evaluated by EPA Method 537 Mod and does not include R-PSDA, Hydrolyzed PSDA, and R-EVE.
3. Non-detect values were not included in sum of total Table 3+ results.
4. Total Table 3+ results include J-qualified data.
5. 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.
6. Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

1

2

25 12.5 0 25 Miles

2 1 0 2 Miles

Cape Fear River Total Table 3+ Concentrations (17 Compounds) - May 2020

Chemours Fayetteville Works, North Carolina

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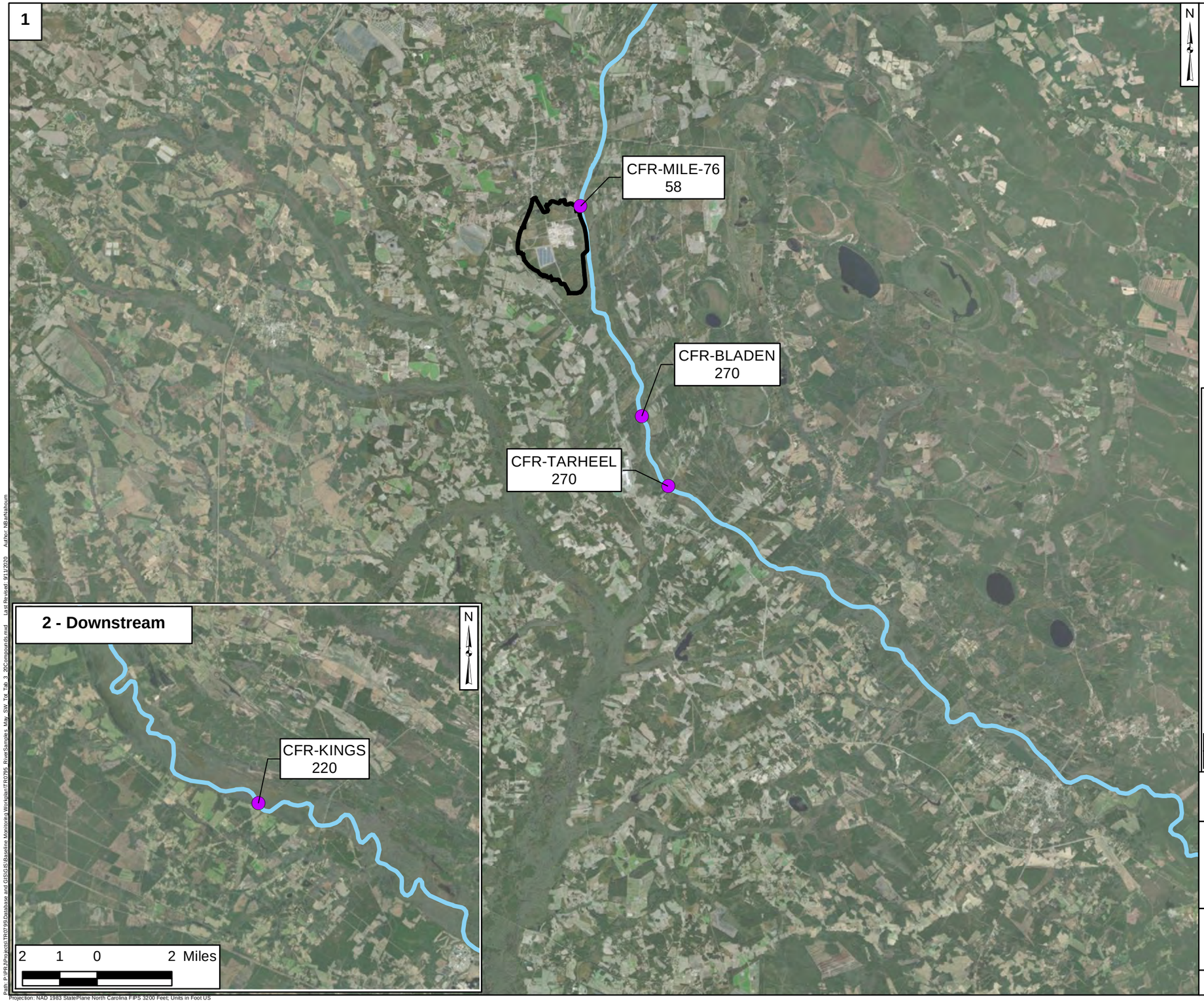
Figure **11A**

Path: P:\PR\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring\Workplan\TR0795_RiverSamples_May_SW_Tot_Tab_3_17Compounds.mxd Last Revised: 9/2/2020 Author: Tlp

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US

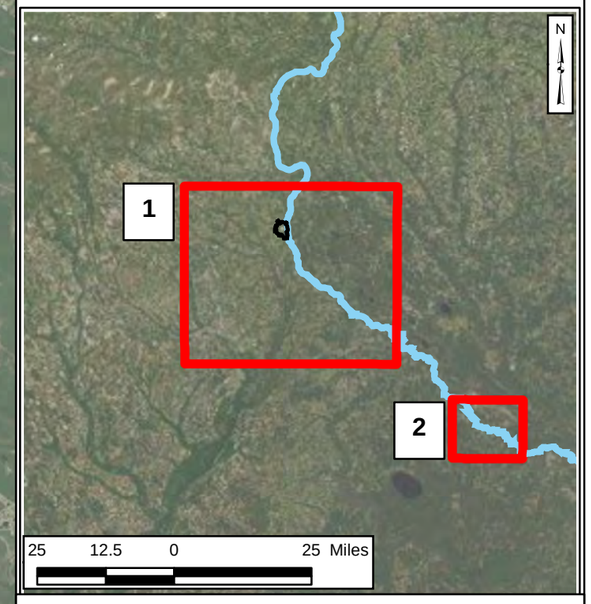


Legend

- Sample Location
- Site Boundary
- Cape Fear River

Notes:
HFPO-DA - hexafluoropropylene oxide dimer acid

1. All results are in nanograms per liter.
2. Total table 3+ concentration is summed over all 20 compounds including R-PSDA, Hydrolyzed PSDA, and R-EVE, and includes HFPO-DA results evaluated by EPA Method 537 Mod.
3. Non-detect values were not included in sum of total Table 3+ results.
4. Total Table 3+ results include J-qualified data.
5. 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.
6. Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



2 1 0 2 Miles

Cape Fear River Total Table 3+ Concentrations (20 Compounds) - May 2020

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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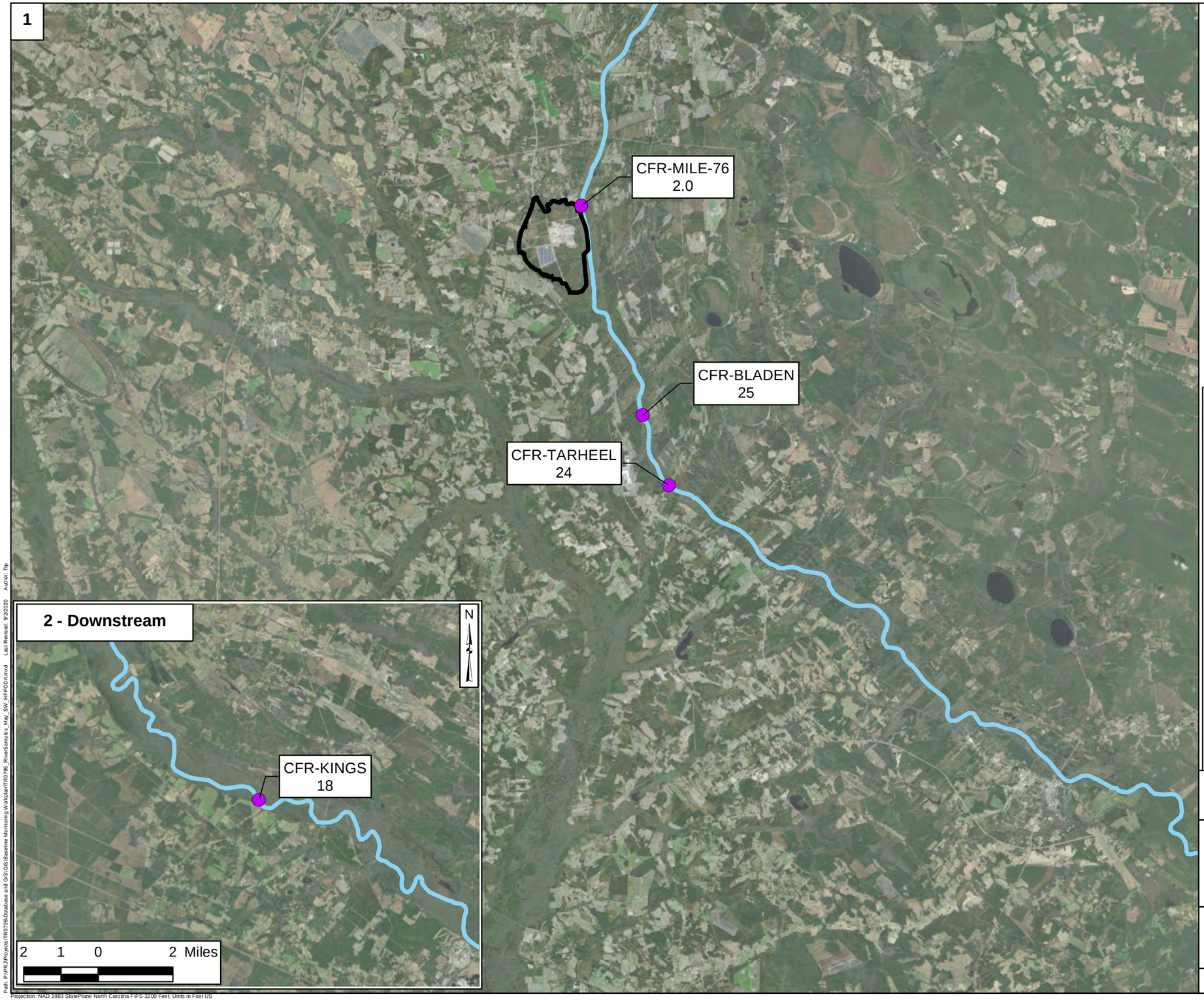
Figure **11B**

Path: P:\PR\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring\Workplan\TR0795_RiverSamples_May_SW_Tot_Tab_3_20Compounds.mxd Last Revised: 9/11/2020 Author: NBarkhahoum

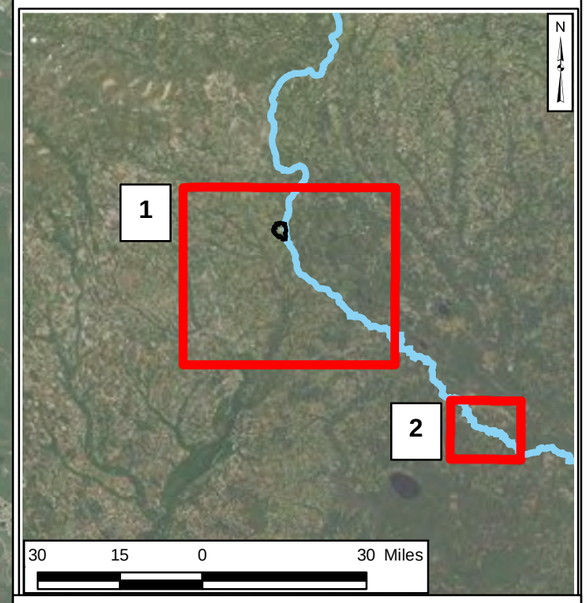
Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US



Legend

- Sample Location
- Site Boundary
- Cape Fear River

Notes:
HFPO-DA - hexafluoropropylene oxide dimer acid
1. All results are in nanograms per liter.
2. Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



2 1 0 2 Miles

Cape Fear River HFPO-DA Concentrations - May 2020

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C 3500 and C 295

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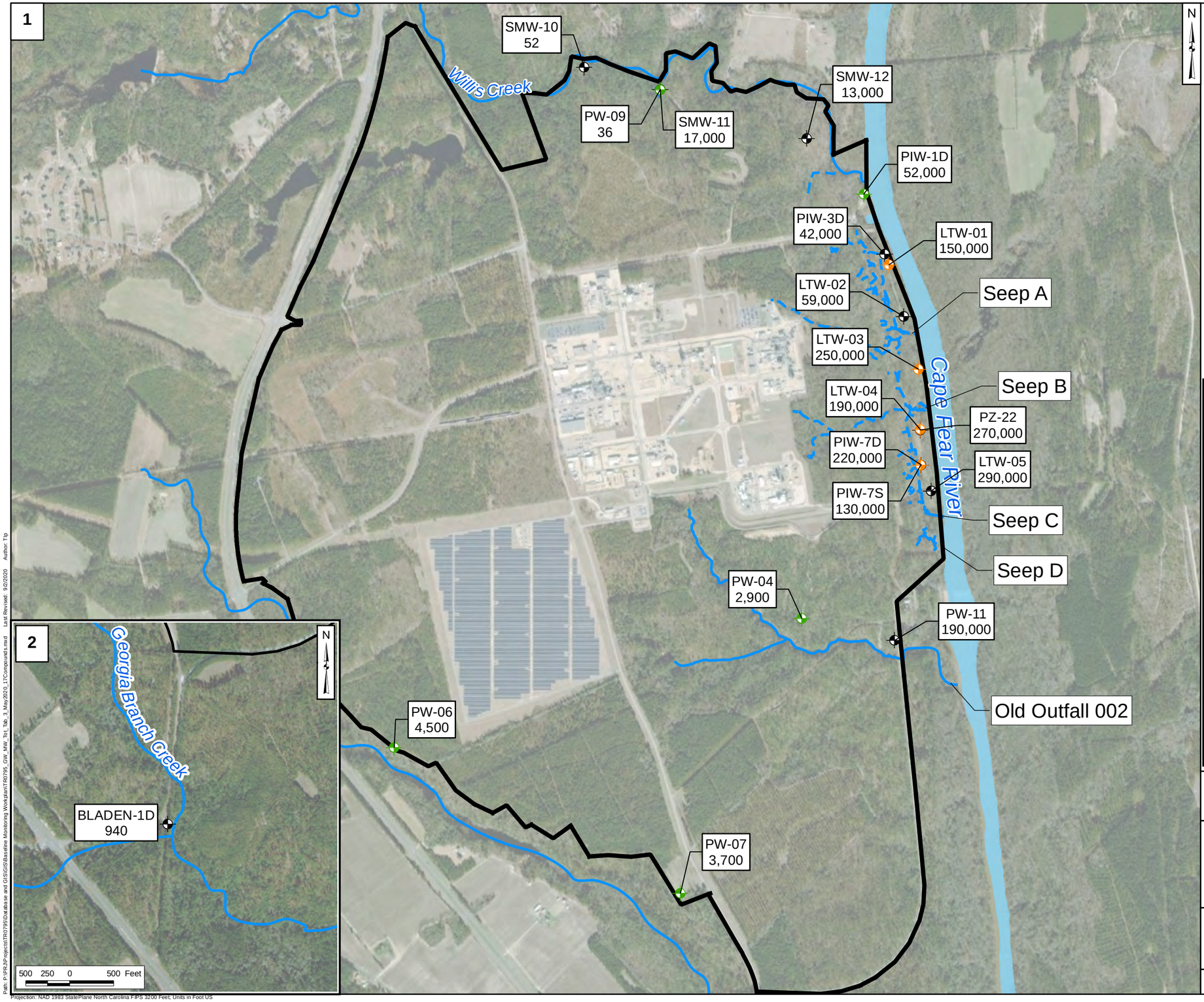
Figure 12

Path: P:\PRJ\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring\Workplan\TR0795_RiverSamples_May_SW_HFPODA.mxd Last Revised: 9/2/2020 Author: Tip

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US



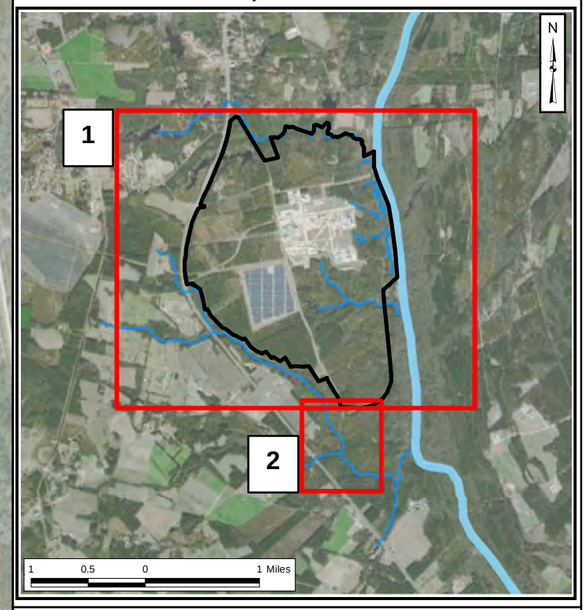
Legend

- Surficial Aquifer
- Floodplain Deposits
- Black Creek Aquifer
- Observed Seep
- Nearby Tributary
- Site Boundary

Notes:

HFPO-DA - hexafluoropropylene oxide dimer acid

1. All results are in nanograms per liter.
2. Total table 3+ concentration includes HFPO-DA results evaluated by EPA Method 537 Mod and does not include R-PSDA, Hydrolyzed PSDA, and R-EVE.
3. Non-detect values were not included in sum of total Table 3+ results.
4. Total Table 3+ results include J-qualified data.
5. 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.
6. Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.



Total Table 3+ Concentrations (17 Compounds) in Groundwater - May 2020

Chemours Fayetteville Works, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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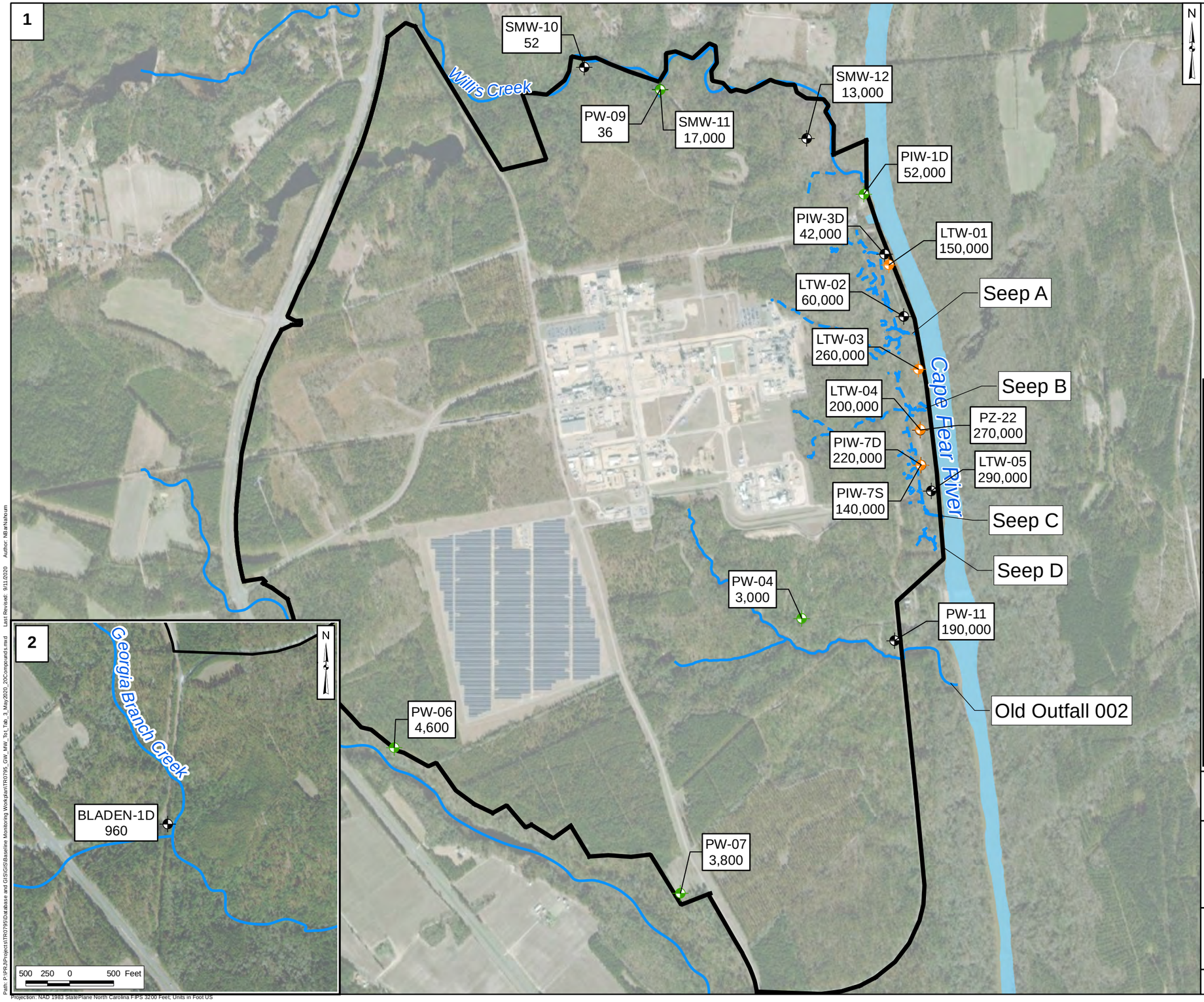
Figure **13A**

Path: P:\PRJ\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_GW_MW_Tot_Tab_3_May2020_17Compounds.mxd Last Revised: 9/2/2020 Author: Tip

Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US



Legend

- Surficial Aquifer
- Floodplain Deposits
- Black Creek Aquifer
- Observed Seep
- Nearby Tributary
- Site Boundary

Notes:

HFPO-DA - hexafluoropropylene oxide dimer acid

1. All results are in nanograms per liter.
2. Total table 3+ concentration is summed over all 20 compounds including R-PSDA, Hydrolyzed PSDA, and R-EVE, and includes HFPO-DA results evaluated by EPA Method 537 Mod.
3. Non-detect values were not included in sum of total Table 3+ results.
4. Total Table 3+ results include J-qualified data.
5. 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.
6. Basemap sources: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community.

Total Table 3+ Concentrations (20 Compounds) in Groundwater - May 2020

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Geosyntec consultants

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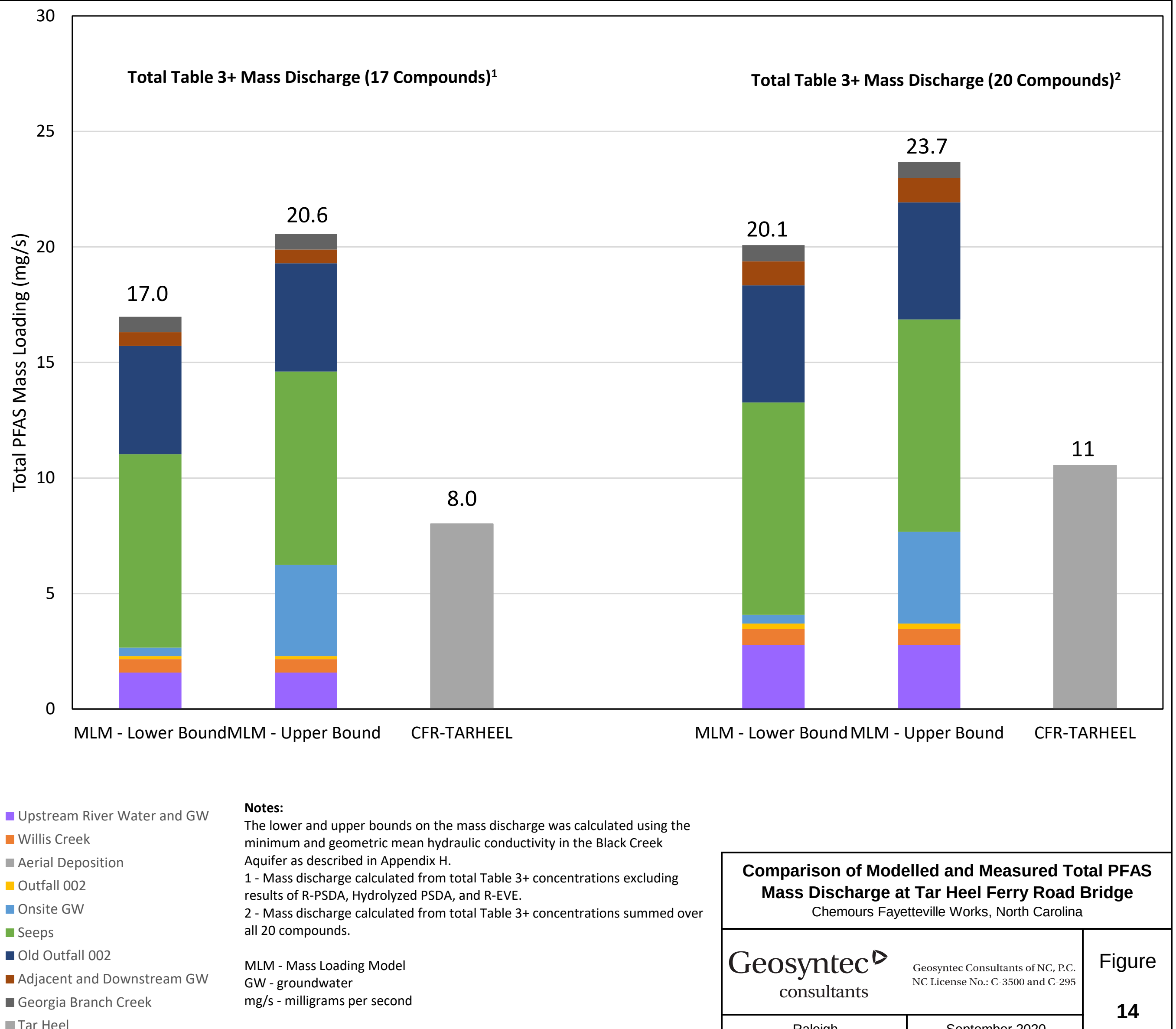
Figure **13B**

Path: P:\PR\JP\Projects\TR0795\Database and GIS\GIS\Baseline Monitoring Workplan\TR0795_GW_MW_Tot_Tab_3_May2020_20Compounds.mxd Last Revised: 9/11/2020 Author: NBarNahoum
Projection: NAD 1983 StatePlane North Carolina FIPS 3200 Feet; Units in Foot US



Notes:
The lower and upper bounds on the mass discharge was calculated using the minimum and geometric mean hydraulic conductivity in the Black Creek Aquifer as described in Appendix H.
1 - Mass discharge calculated from total Table 3+ concentrations excluding results of R-PSDA, Hydrolyzed PSDA, and R-EVE.
2 - Mass discharge calculated from total Table 3+ concentrations summed over all 20 compounds.

MLM - Mass Loading Model
GW - groundwater
mg/s - milligrams per second

Comparison of Modelled and Measured Total PFAS Mass Discharge at Tar Heel Ferry Road Bridge
Chemours Fayetteville Works, North Carolina

Geosyntec consultants

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Figure **14**

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