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NC License No.: C-3500 and C-295

Interim Four Counties Sampling and Drinking Water Plan (New Hanover, Brunswick, Columbus and Pender Counties)

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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ACRONYMS AND ABBREVIATIONS

HFPO-DA	hexafluoropropylene oxide dimer acid
NCDEQ	North Carolina Department of Environmental Quality
ng/L	nanograms per liter
PFAS	per- and polyfluoroalkyl substances

1.0 INTRODUCTION

This Interim Four Counties Sampling and Drinking Water Plan has been prepared by Geosyntec Consultants of NC, P.C. (Geosyntec) for The Chemours Company FC, LLC (Chemours). This document presents an interim plan for sampling private wells and implementing mitigation measures in New Hanover, Brunswick, Columbus, and Pender Counties (the counties) of North Carolina.

In a letter from the North Carolina Department of Environmental Quality (NCDEQ) on 3 November 2021 (NCDEQ, 2021), NCDEQ requested that Chemours submit an updated Drinking Water Compliance Plan pursuant to Paragraph 24 of the Consent Order (CO) between Chemours, NCDEQ, and Cape Fear River Watch, which was entered by the Court on 25 February 2019. In this letter, NCDEQ also requested that the updated Drinking Water Compliance Plan include a sampling plan for drinking water wells in the counties and identify the methods to provide replacement drinking water to qualifying parties. To address these requests from NCDEQ, this revised Interim Sampling and Drinking Water Plan has been prepared specifically for the four counties.

NCDEQ also posted to their website[1] on 3 November 2021 per- and polyfluoroalkyl substances (PFAS) data from groundwater samples collected from NCDEQ and Cape Fear Public Utility Authority public supply wells between 2019 and 2021. These data were supplemented with additional PFAS data from groundwater samples collected from different wells, including private, public supply and emergency wells, which were provided to Chemours on behalf of NCDEQ via email on 5 December 2021.

The Drinking Water Compliance Plan for the area surrounding the Fayetteville Works Facility (Facility; Parsons, 2019) was developed to identify private wells with CO Attachment C PFAS (Attachment C PFAS; Table 1) from Facility air emissions and methods to provide a replacement drinking water supply. As such, not all elements of that Drinking Water Compliance Plan, including the sampling design, are relevant to the private wells in the four specified counties. As a result, a Sampling and Drinking Water Plan specific to the four counties is needed to fulfill the request from NCDEQ. Further, there is currently very limited PFAS and other information concerning private wells in the four counties.

1.1 Interim Plan Objectives

Over the 2,900 square miles of the four counties, little is known about the spatial distribution of Attachment C PFAS. Actively collecting data about the spatial distribution of Attachment C PFAS across the four counties is essential to develop a data-driven, systematic Four Counties Sampling and Drinking Water Plan. Therefore, this Interim Plan has been developed to fulfill the request from NCDEQ and actively collect these needed data. The objectives of this Interim Plan are to:

[1] https://deq.nc.gov/dwr-gwr-lcfr-pfas-data-2019-2021

1. Initiate the delineation of Attachment C PFAS contamination in the four counties by sampling a representative group of private wells,

2. Identify methods to provide replacement drinking water to identified qualifying private wells (properties with private wells as the primary source of drinking water will be considered, including households, businesses, schools and public buildings), and

3. Use representative sampling to characterize the distribution of exceedances of Attachment C CO criteria in private wells to allow for the development of a data-driven systematic program as described below.

This Interim Plan will be superseded with an Updated Four Counties Sampling and Drinking Water Plan. Based on the data and information gathered during the Interim Plan, the Updated Four Counties Sampling and Drinking Water Plan will include a comprehensive sampling design to complete, if necessary, the delineation of contamination by Attachment C CO PFAS in the four counties, and to sample private wells within the delineated areas. The Updated Plan may also propose updates to the process by which permanent replacement drinking water supplies are provided.

1.2 Progress Reports during the Interim Plan Period

The sampling approaches described in this document have been developed based on presently available data and current understanding of the PFAS distribution in each of the counties. As more data become available in each of the counties, modifications may need to be made to this Interim Plan.

Data and results from the Interim Plan sampling program will be provided to NCDEQ in a progress report on a quarterly basis, where the first quarter will start on April 1, 2022. The progress report for the previous quarter will be provided within ninety (90) days of the end of the previous quarter. It is anticipated that the sampling will be conducted for at least twelve (12) months.

1.3 Four Counties Sampling and Drinking Water Plan Workflow

To fulfill the 3 November 2021 request from NCDEQ, while also gathering information for each of the counties, a workflow has been developed as shown in Figure 1.

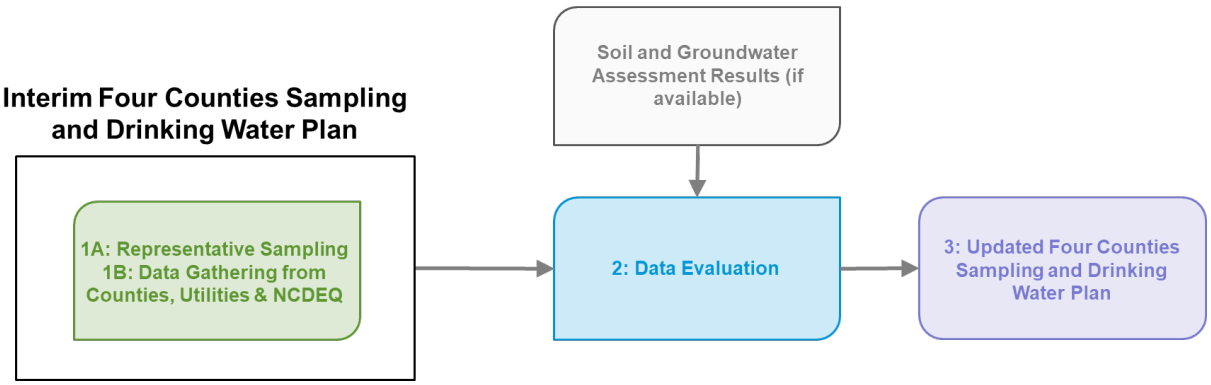

Figure 1 Interim Four Counties Sampling and Drinking Water Plan Workflow Diagram

The workflow includes three steps, where Steps 1A and 1B will occur concurrently and represent the private well sampling and information gathering that will occur under this Interim Plan. It is anticipated that sampling will be conducted for at least twelve (12) months.

Step 1A (Representative Sampling) includes sending a letter that requests information from and offers sampling to addresses located within eligible areas across the four counties (Section 2.1.1). Private well sampling will be scheduled for those who respond to the letter indicating that their private well is the primary source of drinking water on their property and their consent to having their well tested. Step 1A also includes sampling of eligible private wells received through the call line, and resampling of the 11 private wells sampled by NCDEQ (Sections 2.1 and 3.0). Step 1B (Data gathering) includes compilation of private well and other supporting information to address the current limitations in knowledge of the distribution of PFAS in the four counties (Section 2.2).

Step 2 (Data evaluation) will include a summary of the findings from sampling conducted under the Interim Plan. Finally, Step 3 will be the preparation of an Updated Four Counties Sampling and Drinking Water Plan.

For the private wells sampled during this Interim Sampling and Drinking Water Plan, bottled water and a voucher card will be offered as an interim drinking water replacement if Attachment C PFAS concentrations exceed the criteria outlined in Paragraphs 19 and 20 of the CO[2]. Qualified residents will be offered permanent replacement drinking water (e.g., public water connection, water filtration system, etc.) within the timeframe set forth in the CO (see Section 3.2).

[2] Any single Attachment C PFAS compound is greater than or equal to 10 nanograms per liter (ng/L), the sum of the Attachment C PFAS compounds is greater than or equal to 70 ng/L, or hexafluoropropylene oxide dimer acid (HFPO-DA) is greater than equal to 140 ng/L.

Table 1 Attachment C PFAS Compounds

Common Name	Chemical Name	CASRN	Chemical Formula
HFPO-DA[1]	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
PFO5DA	Perfluoro-3,5,7,9,11-pentaoxadodecanoic acid	39492-91-6	C7HF13O7
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
PFHpA[1]	Perfluoroheptanoic acid	375-85-9	C7HF13O2

Notes:

[1] HFPO-DA and PFHpA can be analyzed under methods Table 3+ Standard Operating Procedure (SOP) and Environmental Protection Agency (EPA) Method 537 Mod.

CASRN - Chemical Abstract Service Registry Number

2.0 PRIVATE WELL SAMPLING

2.1 Step 1A – Representative Sampling

Representative sampling will be conducted by offering sampling of eligible private wells in the four counties as described below. This sampling, Step 1A will be completed in conjunction with the data gathering stage (Step 1B). The objectives of the representative sampling step are three-fold. First sampling will be provided to eligible addresses which call in requesting sampling. Second sampling will be conducted in areas where attachment C PFAS are potentially present in private wells based on prior NCDEQ sampling efforts or information from hypotheses about the source of these PFAS. Third, representative sampling will be conducted across the four counties to better characterize the spatial extent and distribution of Attachment C PFAS to inform development of the Updated Plan.

2.1.1 Representative Sampling Approach

Representative sampling efforts will include testing ***eligible*** private wells identified through:

1. Extensive community outreach across the four counties (Appendix A);
2. Proximity to existing and future CO exceedances[3] (i.e., within a quarter mile of a private well where Attachment C PFAS concentrations exceed CO criteria);
3. Requests received via the call line; and
4. Resampling of the 11 private wells sampled by NCDEQ.

As part of the community outreach, certain potentially eligible addresses will be contacted by mail to request information related to public water connection and to offer sampling. This list of potentially eligible addresses will include properties with private wells as the primary source of drinking water such as households, businesses, schools and public buildings.

The following criteria will be used to determine eligibility addresses (referred to herein as sampling eligibility criteria; see Appendix B that contains a map for each county) that will be contacted by Chemours:

- The private well is the primary source of drinking water on the property, and

[3] Any single Attachment C PFAS compound is greater than or equal to 10 nanograms per liter (ng/L), the sum of the Attachment C PFAS compounds is greater than or equal to 70 ng/L, or hexafluoropropylene oxide dimer acid (HFPO-DA) is greater than equal to 140 ng/L.

- The private well is located within the 100-year floodplain associated with Cape Fear River[4,5], or
- The private well is within a quarter mile of public water service lines[6] or sanitary sewer networks[7], including areas where PFAS may have seeped into surrounding aquifers, such as areas of leaking utility pipes, or direct injection or application of Cape Fear River water. Information obtained to date show that these areas are within the public water distribution areas and captured by this criterion; or
- The private well is within a quarter-mile radius of known Attachment C PFAS concentrations in private and non-private wells exceeding CO criteria.

If additional areas outside of the present areas of eligibility, i.e., areas of the counties that are defined by the sampling eligibility criteria, are identified during the data gathering step (Step 1B of this Interim Plan and the Assessment Framework), then the eligibility criteria will be revised to include these areas.

Mailed letters will request well owners/residents to provide a response on whether they are connected to public water (if the status of public water connection is unknown) and if their primary source of drinking water is a private well (Appendix A). The letter will also offer sampling of their private well. Well owners/residents can then respond by mail (prepaid return envelope) or by contacting the call line (Section 2.1.3). Once the well owners/residents provide the requested information, and indicate their consent to sampling their wells, Chemours will contact the well owners/residents that use their private well as the primary source of drinking water to schedule sampling. Letters will not be sent to owners/residents that are known to be connected to public water.

If after 90 days, the well owner/resident has not contacted Chemours to provide a response, a second letter will be mailed. Letter deliveries, messages and conversations will be documented in electronic logs and uploaded to the project database.

[4] As described in the Soil and Groundwater Assessment Framework (Geosyntec, 2022), Cape Fear River water withdrawals and usage may potentially be responsible for Table 3+ PFAS detected in samples collected by NCDEQ. One hypothesis identified in the framework is Table 3+ PFAS originating from aquifer recharge by Cape Fear River including recharge in Floodplain areas.

[5] In addition to the extent of the 100-year floodplain associated with Cape Fear River (provided by the Federal Emergency Management Agency; FEMA), limits of saltwater marshes in the areas where Black River and Northeast Cape Fear River meet Cape Fear were included to account for the possibility of tidal backwash of Cape Fear River into these rivers. This criterion also includes the last half mile floodplain of each tributary before it joins the Cape Fear River.

[6] Presently available data for public water service lines are incomplete across the four counties. Where public water service lines are not currently available, eligibility will be determined based on known public service areas. The quarter mile buffer will be placed around the public water service lines, as additional data become available.

[7] As described in the Soil and Groundwater Assessment Framework (Geosyntec, 2022), one hypothesis being evaluated is Table 3+ PFAS originating from leaks in water distribution and sanitary sewer lines. If during the assessment, this hypothesis is refined or not supported, then this criterion will be changed accordingly.

Samples collected will be analyzed for Attachment C PFAS compounds (Table 1) and may also be analyzed for other parameters (e.g., other PFAS, other contaminants, other water quality parameters, etc.) such as those listed in Tables B.1 and B.2 (Appendix B). Samples will be analyzed by a third party laboratory approved by NCDEQ.

Based on the analytical results from the sampling described above, additional private wells will be sampled within a quarter mile radius of Attachment C PFAS concentrations exceeding CO criteria.

The results of the private well sampling will be evaluated on a quarterly basis, and adjustments will be made to the sampling approach, as necessary. Sampling results and updates made to the sampling approach (if any) will be documented in quarterly progress reports that will be transmitted to NCDEQ (Sections 1.2 and 4.0). Specifically, the spatial distribution of the private wells and PFAS results collected during the representative sampling will be reviewed after six (6) months to assess the need for further delineation. Updates to the sampling approach, if needed, will be included in the quarterly progress report transmitted to NCDEQ.

2.1.2 Call Center

An information call line was activated by Chemours on 15 February 2022. This call line has been used to answer questions about the activities covered in this plan and for residents to request sampling of their private wells. Residents can call (910) 678-1100 at any time to leave a message requesting additional well sampling information or to leave questions about any step in the interim drinking water replacement process. Messages to the call line are monitored during regular business hours (Monday through Friday, 9am to 5pm). Calls requiring follow-up are usually returned within 24 to 48 hours starting on the next business day.

Well owners/residents that request sampling via the call center will be screened against the eligibility criteria described in Section 2.1.1. If the private well meets the criteria, Chemours will contact the resident/owner and schedule them for sampling.

2.1.3 Resampling of Private Wells in New Hanover

Chemours will resample the 11 private wells sampled by NCDEQ to confirm the Attachment C PFAS analytical results. Based on the analytical results, if an owner/resident qualifies for interim replacement drinking water, then bottled water and a voucher card will be provided (see Section 3.0).

2.1.4 Sampling Methods

Private well sampling will be completed by Chemours subcontractor Parsons of NC (Parsons) using procedures outlined in Appendix B. Data collected during a sampling team visit will be uploaded to the project database. Well owners/residents, regardless of eligibility, will be logged throughout the duration of the sampling program.

2.1.5 Provision of Sampling Results and Interim Drinking Water Replacement

On an ongoing basis and within seven (7) days of receipt of final laboratory results, Chemours will provide new groundwater sampling results to NCDEQ, with samples identified by both address and sample identification code. In addition, within seven (7) days of receipt of final laboratory results, Chemours will also provide the results in the form of a certified summary certificate to the party who had their well tested. Results may also be provided to the individual counties or other state and local government agencies.

Correspondence will be sent to each well owner/resident providing them with their sampling results for Attachment C PFAS compounds. If analyzed for additional compounds (Appendix B), a separate letter will be sent which will include the laboratory analytical report. If the well owner/resident has any questions regarding results of the analytical results, they will be told that they can contact their local health department or NCDEQ. Parsons may also attempt to hand deliver returned letters. For parties who Chemours knows to be represented by legal counsel, communications will be made through counsel.

Based on the analytical results, bottled water and a voucher card will be offered to qualifying well owners/residents as an interim replacement to private drinking water supply in accordance with procedures in Section 3.0. The process by which the appropriate permanent replacement drinking water delivery means will be identified and provided is discussed in Section 3.0.

2.2 Step 1B - Compilation of Private Well and Other Supporting Information

During the Interim Plan and as needed afterwards, Chemours will continue to advance data gathering. Data gathering includes two types of requests (Table 2). The first request type is for information from NCDEQ, the counties and utility providers about which addresses in the four counties are supplied by public water. These data are important to infer which addresses in the four counties have private wells, thus making overall efforts of this Interim Plan and upcoming Updated Plan more efficient and targeted.

The second type of data request is related to understanding the presence and distribution of PFAS in the four counties. These requests were described in the *Framework to Assess Table 3+ PFAS in New Hanover, Brunswick, Columbus and Pender Counties* (Geosyntec, 2022). These requests include such items as locations of water main leaks, sanitary sewer network locations and known users of Cape Fear River water. These knowledge from these requests is important to help prepare an Updated Four Counties Sampling and Drinking Water Plan that uses a data-driven approach informed by knowledge of how and where Attachment C PFAS may have been introduced to groundwater in the four counties.

Chemours appreciates NCDEQ's support of data gathering activities and may request additional help facilitating teleconferences and data sharing requests with certain public entities in the four counties.

Table 2 Summary of Data Needs by Request Type

Data Needs	Request Type
Residential parcels, tax detail data, and building footprint in digital form	1
A consolidated list containing private well location information (such as eastings, northings, address and/or tax parcels), well owner, elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit)	1
Digital computerized map of potable water distribution networks	1
Database of addresses using public water, i.e., not using private well as the primary source of drinking water	1
Records regarding the numbers, locations, registrations, usages, and well service and operation histories of private and public drinking water supply wells	1
Any data (and relevant information, including but not limited to laboratory electronic data deliverables and sample collection information, etc.) indicating the presence of PFAS in water sources	1
Data about water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations)	2
Information since 1979, on a per year basis, of the proportion of Cape Fear River water versus groundwater or other water sources used in each distribution system	2
Locations where surface water from the Cape Fear River was injected into subsurface aquifers	2
List of parties permitted to withdraw Cape Fear River water since 1979 (NCDEQ)	2
Records of customers of Lower Cape Fear Water & Sewer Authority	2
Identification of golf courses, cemeteries and parks using Cape Fear River water for irrigation	2
Identification of farmland practices and locations using Cape Fear River water for irrigation	2
Records of Aquifer Storage and Recovery program (volumes injected, dates operational, etc.)	2

3.0 REPLACEMENT OF PRIVATE DRINKING SUPPLIES

Bottled water and a voucher card will be offered as an interim drinking water replacement if the Attachment C PFAS concentrations in the private wells sampled during the Interim Sampling and Drinking Water Plan exceed the criteria outlined in Paragraphs 19 and 20 of the CO[8].

3.1 Interim Replacement Drinking Supplies

3.1.1 Bottled Water and Letter Delivery

Upon notification that a resident qualifies for replacement drinking water, Chemours representatives (Parsons) will provide initial replacement drinking water within three (3) days by visiting the property and delivering up to one (1) month's supply of bottled water along with a letter explaining the path forward for obtaining interim bottled water. If the team is not able to deliver the initial replacement drinking water, a scheduler will attempt to call the resident and make an appointment for the team to return and make the delivery.

Water and letter delivery, as well as all delivery attempts, messages, and conversations, will be documented in the project database.

3.1.2 Bottled Water Voucher Card

After bottled water and letter delivery, the well owner/resident will receive a bottled water voucher card for purchasing drinking water. The voucher card will be preloaded with $225 for three (3) months of drinking water, which equates to $75 per month. The voucher card will continue to be loaded for the duration of this Interim Plan, until permanent drinking water supply is provided.

This voucher card is only to be used for purchasing bottled water. Well owners/residents will receive detailed voucher card instructions, customer service contact information, and the Chemours Call Line phone number, along with the voucher card.

3.2 Permanent Replacement Drinking Supplies

Qualified owners/residents will be offered permanent replacement drinking water within the timeframe set forth in the Consent Order. This offer may include connection to public water where Chemours determines that is appropriate. For addresses where Chemours does not offer, or the owner/resident does not accept, connections to public water, Chemours will offer water filtration systems consistent with CO paragraph 20. Chemours may propose updates to this process in the Updated Plan.

[8] Any single Attachment C PFAS compound is greater than or equal to 10 nanograms per liter (ng/L), the sum of the Attachment C PFAS compounds is greater than or equal to 70 ng/L, or hexafluoropropylene oxide dimer acid (HFPO-DA) is greater than equal to 140 ng/L.

4.0 SCHEDULE AND REPORTING

Sample results will be provided to each resident and to NCDEQ when final data are available. Information is provided to the resident via mail, and to the property owner when Chemours is made aware that the resident is not the owner. Residents who are not the property owner will receive notification indicating eligibility and will be offered interim replacement drinking water (if applicable).

Chemours will also provide notification to NCDEQ (as requested) via email of each resident that declines interim replacement drinking water within seven (7) days or as soon as practicable thereafter of the resident declining. The notification will include the names, addresses, and contact information for all the residents who have declined.

Quarterly reports documenting the implementation of the Interim Four Counties Sampling and Drinking Water Plan will be submitted to NCDEQ. These quarterly reports will include summaries of the sampling activities completed and the residents who are eligible for interim replacement drinking water. These quarterly reports may be submitted separately to NCDEQ or will be included as a separate section in the current quarterly report that is required under Paragraph 28 of the CO.

As mentioned in Section 1.2, the results of the private well sampling conducted under this Interim Plan will be evaluated on a quarterly basis, and adjustments will be made to the sampling approach, as necessary. The data and results will be summarized in quarterly progress reports, separate from the quarterly report required under CO Paragraph 28, that will be provided to NCDEQ, where findings for the previous quarter are provided within ninety (90) days of the end of the previous quarter.

No later than 120 days after the end of the last quarter of sampling (tentatively one year from April 1, 2022), the Updated Four Counties Drinking Water and Sampling Plan will be prepared and submitted based on the findings from the Interim Plan.

5.0 REFERENCES

Geosyntec Consultants of NC, P.C. 2021a. *Response to NCDEQ Comments on Consent Order Paragraph 18 On and Offsite Assessment Report*. June 14, 2021.

Geosyntec Consultants of NC, P.C. 2022. *Framework to Assess Table 3+ PFAS in New Hanover, Brunswick, Columbus and Pender Counties*: Chemours Fayetteville Works. DRAFT. February 1, 2022.

NCDEQ. 2021. *"Re: Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 – Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies."* North Carolina Department of Environmental Quality, Assistant Secretary for the Environment. November.

Parsons. 2019. *Drinking Water Compliance Plan*: Chemours Fayetteville Works. April.

Appendix A
Private Drinking Water Well Sampling Procedures and Community Outreach Letter

APPENDIX A
PRIVATE DRINKING WATER WELL SAMPLING PROCEDURES

The purpose of this appendix is to describe the general sampling procedures to be used for private well sampling as outlined in the Interim Drinking Compliance Plan.

Sampling Notification and Documentation

To conduct the sampling, Chemours subcontractor representatives (Parsons of NC) will go to the identified residence, knock on the door, and deliver a notification letter from Chemours. The notification letter (i) describes the private well sampling program; (ii) requests the resident's participation if applicable; and (iii) includes a phone number that the resident can call to request information about the program and/or to schedule sampling of their private well. Notifications and responses to notifications (e.g., accept or decline) will be documented on electronic field forms.

If the resident is at home and accepts the offer to have their private well sampled, then the resident can choose to either have the sample collected at that time or reschedule sampling for a later time. If the resident declines the offer of sampling, then the decline will be noted in the electronic field form.

If no one is home, the sampling team will leave the notification letter in a prominent location and the notification will be noted in the electronic field form.

For residents that either have not called to request sampling or whose residence was inaccessible, Chemours subcontractor representatives will attempt to make contact again via a mailed letter sent after the initial visit. The mailed letter will again offer sampling of private wells. If needed, the project team may also make a return visit to the residence to deliver another copy of the notification letter. If no communication is received from the resident after the letter is mailed, follow-up letters will be sent each quarter for the next three quarters (a total of 4 letters will be mailed to the resident).

Chemours subcontractor representatives will maintain a database that includes addresses, the dates and status of attempts to contact each resident, resident's contact information (name, mailing address, phone number), sampling completed, and any declines of the offer to sample.

Sample Collection Methodology

The procedure for sampling private wells is as follows:

1. Record available information about the resident (name, contact number, etc.), the property owner, and the well (well age, depth, construction history, presence/location of any filters or other systems, etc.).
2. Don a new pair of powderless, disposable nitrile (or similar) gloves for each sample being collected.
3. Find the spigot closest to the well head.

4. Turn on water at the selected spigot and purge the well until the pump turns on (usually approximately 5 to 10 minutes).

5. Hold the high-density polypropylene sampling bottle by the body. Do not touch or handle the bottle by the neck and mouth. Remove the bottle cap and do not set it down at any point, place the bottle under the spigot, and fill completely. Do not allow the neck or the mouth of the bottle to touch the spigot. Do not use a secondary container to fill the bottle.

6. Recap the sample bottle and secure cap completely.

7. Affix a pre-printed sample label to the bottle (unless already affixed by the laboratory). If the label is not pre-printed, fill out relevant sample information on the label.

8. Place the sample in a cooler of wet ice or in cold storage for future shipping.

9. Record the sample name, date, and time in the electronic field form.

10. Complete the chain of custody form(s), secure the cooler, and ship the samples to the analytical laboratory.

11. Information related to collection of each private well sample will be recorded on an electronic data collection form. Drinking water will be sampled directly from the well head (or as close as possible) at private wells. To ensure against cross-contamination between drinking water sampling locations, the sampler collecting the samples will wear clean, disposable latex and/or nitrile gloves and limit his/her contact with the samples. Sample bottles and containers appropriate for PFAS analysis will be prepared by the contracted laboratory and will be sealed to ensure cleanliness. Sample bottles will not be cleaned or reused in the field.

Preservation and Handling of Samples

Each containerized sample will be labeled and placed as soon as possible into an insulated sample cooler, which will serve as a shipping container. Wet ice will be placed in the sample containers within heavy-duty plastic bags. Samples will be maintained at a cool temperature (optimum 4°C ± 2°C) from the time of collection until the coolers arrive at the laboratory (if required). Plastic "bubble wrap" and/or polystyrene foam may also be used to protect the samples during shipping.

Prior to shipment of the samples to the laboratory, a chain of custody form will be completed by the sample team. Sample locations, sample identification numbers, description of samples, number of samples collected, and specific laboratory analyses to be run on each sample will be recorded on the chain of custody form.

Quality Assurance/Quality Control

Associated quality control samples as required by the laboratory/analytical method will be collected and analyzed throughout the duration of the project. These may include field duplicates, matrix spikes/duplicates, and field blanks.

The Chemours Company
Fayetteville Works
22828 NC Highway 87 W
Fayetteville, NC 28306

«TodaysDate»

«RecipientName»
«RecipientAddressStreet»
«RecipientAddressCity», «RecipientAddressState» «RecipientAddressZip»

RE: Residential Drinking Water Well Information Request

Dear Owner/Resident/Tenant:

Chemours has begun a drinking well testing program in New Hanover, Brunswick, Columbus and Pender counties. The testing is being performed per the Interim Four Counties Sampling and Drinking Water Plan (Plan). The Plan was submitted to North Carolina Department of Environmental Quality (NCDEQ; https://deq.nc.gov/) on February 1, 2022.

The purpose of this letter is to request information about the source of your drinking water. Chemours is in the process of identifying private drinking water wells that may qualify for testing. The water will be tested for the 12 per- and polyfluoroalkyl substances (PFAS) compounds listed in the Consent Order (CO).[1] If you are using a private well for drinking water purposes, Chemours will call you to schedule sampling. For more information, please check the Fayetteville Works website at: https://www.chemours.com/en/about-chemours/global-reach/fayetteville-works.

Sincerely,

Dawn M. Hughes, Plant Manager
Chemours – Fayetteville Works

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*Please complete the form below and return in the envelope provided or call **(910) 678-1100** and leave a message. A team member will call you back within three business days.*

Name: «RecipName2»

If incorrect, add correct name here: _____

Address: «ResidentAddressStreet»

«ResCityStateZip»

If incorrect, add correct address here: _____

I own this residence: Yes ☐ No ☐ I live at this residence: Yes ☐ No ☐

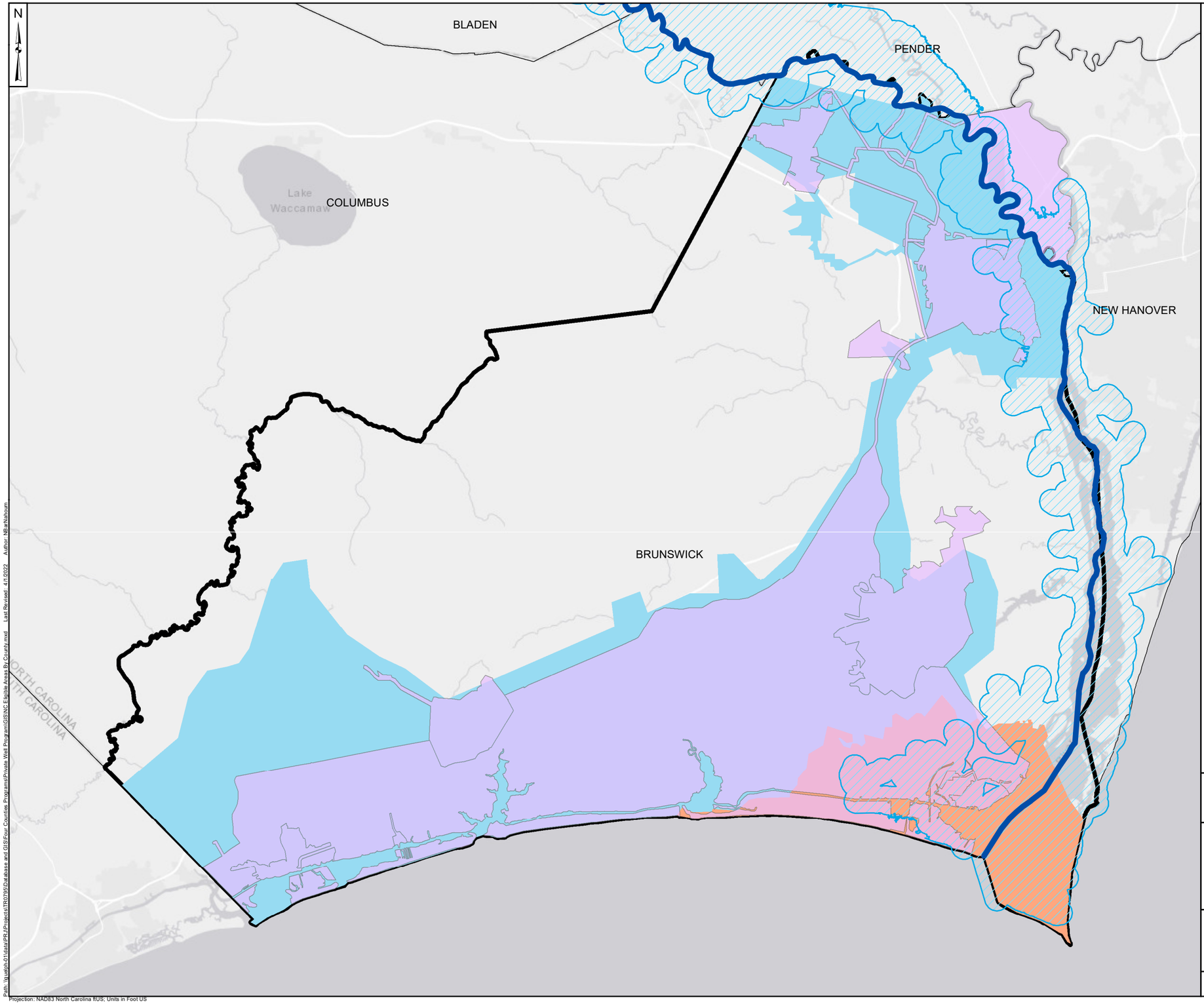
This home is connected to public water: Yes ☐ No ☐

Primary source of drinking water is a private well: Yes ☐ No ☐

Phone: _____ **Can we text this number: Yes ☐ No ☐**

[1] Chemours entered into a Consent Order with NCDEQ and Cape Fear River Watch. The Superior Court for Bladen County approved Consent Order on February 25, 2019.

Appendix B
County Maps and List of Additional Analytes



Legend

- Cape Fear River
- County Boundary
- Surrounding North Carolina County
- 100-Year Floodplain Associated with Cape Fear River[1]
- Brunswick County Public Water Service
- NWWTP Service
- 211 WTP Service

Notes:

1. In addition to the extent of the 100-year floodplain associated with Cape Fear River (provided by the Federal Emergency Management Agency; FEMA), limits of saltwater marshes in the areas where Black River and Northeast Cape Fear River meet Cape Fear were included to account for the possibility of tidal backwash of Cape Fear River into these rivers. This criterion also includes the last half mile floodplain of each tributary before it joins the Cape Fear River.
2. Public Water Service Area was downloaded from The Drinking Water Resilience Interactive Project (DRIP) site (http://drip.unctv.org/maps/maps-051716/).
3. County Boundaries was downloaded from OneMap site (https://www.nconemap.gov).
4. The outline of the River shown on this figure is approximate (River outline based on compilation of open data sources from ArcGIS online service and North Carolina Department of Environmental Quality Online GIS - Major Hydro shapefile).
5. Basemap source: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community.

4 2 0 4 Miles

Brunswick County

Chemours Fayetteville Works
North Carolina

Geosyntec consultants

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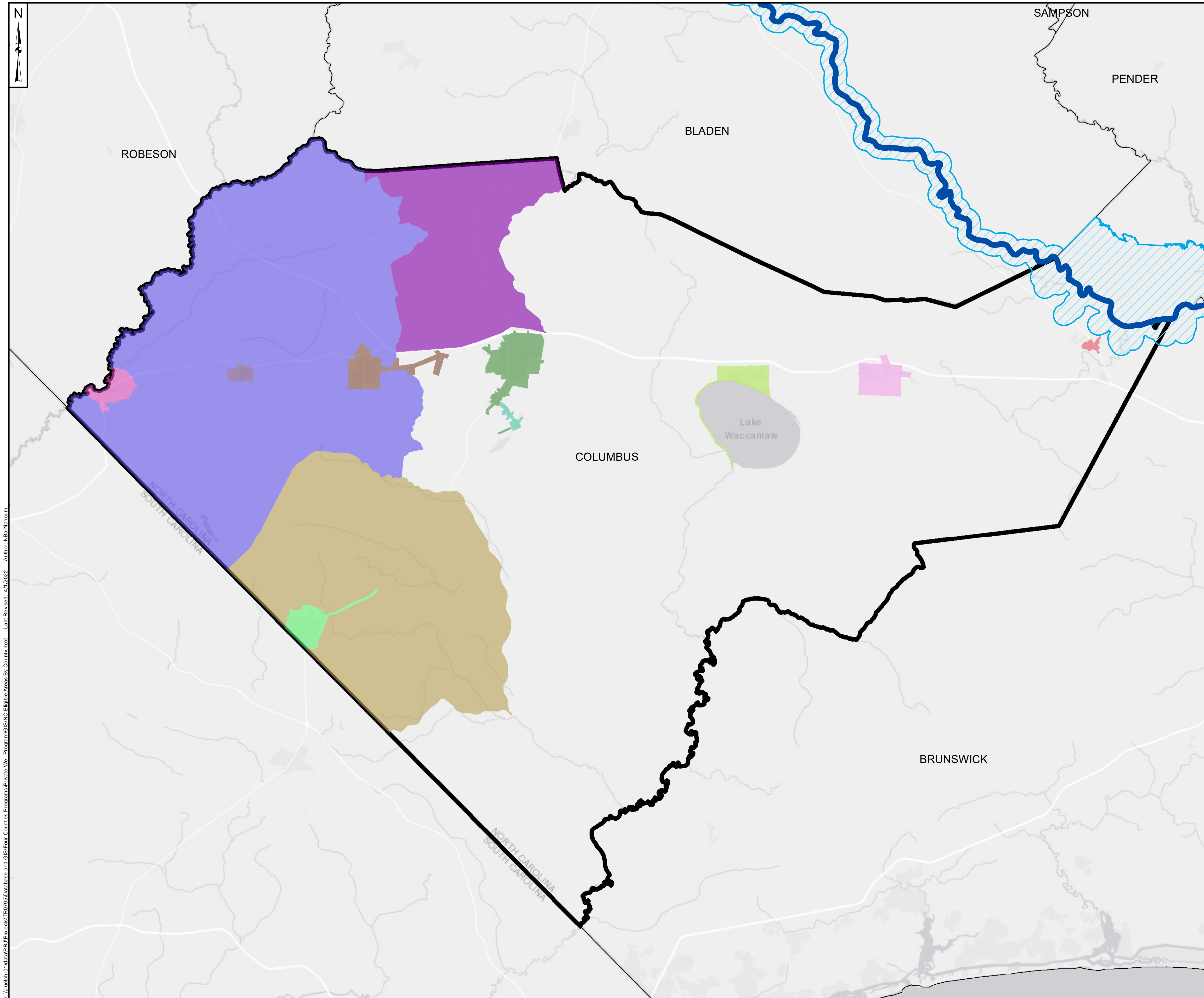
Figure **B.1**

Path: \\ueiph-01\data\PRJ\Projects\TR0795\Database and GIS\Four Counties Programs\Private Well Program\GIS\NC Eligible Areas By County.mxd Last Revised: 4/1/2022 Author: NBarNahoum

Projection: NAD83 North Carolina ftUS; Units in Foot US



Legend

- Cape Fear River
- County Boundary
- Surrounding North Carolina County
- 100-Year Floodplain Associated with Cape Fear River

Public Water Service

- Columbus County WD I
- Columbus County WD II
- Columbus County WD III
- Riegelwood Sanitary District
- Tabor City
- Town Of Bolton
- Town of Brunswick
- Town of Cerro Gordo
- Town of Chadbourn
- Town of Fair Bluff
- Town of Lake Waccamaw
- Town of Whiteville

Notes:
1. In addition to the extent of the 100-year floodplain associated with Cape Fear River (provided by the Federal Emergency Management Agency; FEMA), limits of saltwater marshes in the areas where Black River and Northeast Cape Fear River meet Cape Fear were included to account for the possibility of tidal backwash of Cape Fear River into these rivers. This criterion also includes the last half mile floodplain of each tributary before it joins the Cape Fear River.
2. Public Water Service Area was downloaded from The Drinking Water Resilience Interactive Project (DRIP) site (http://drip.unctv.org/maps/maps-051716/).
3. County Boundaries was downloaded from OneMap site (https://www.nconemap.gov).
4. The outline of the River shown on this figure is approximate (River outline based on compilation of open data sources from ArcGIS online service and North Carolina Department of Environmental Quality Online GIS - Major Hydro shapefile).
5. Basemap source: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community.

4 2 0 4 Miles

Columbus County

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North Carolina

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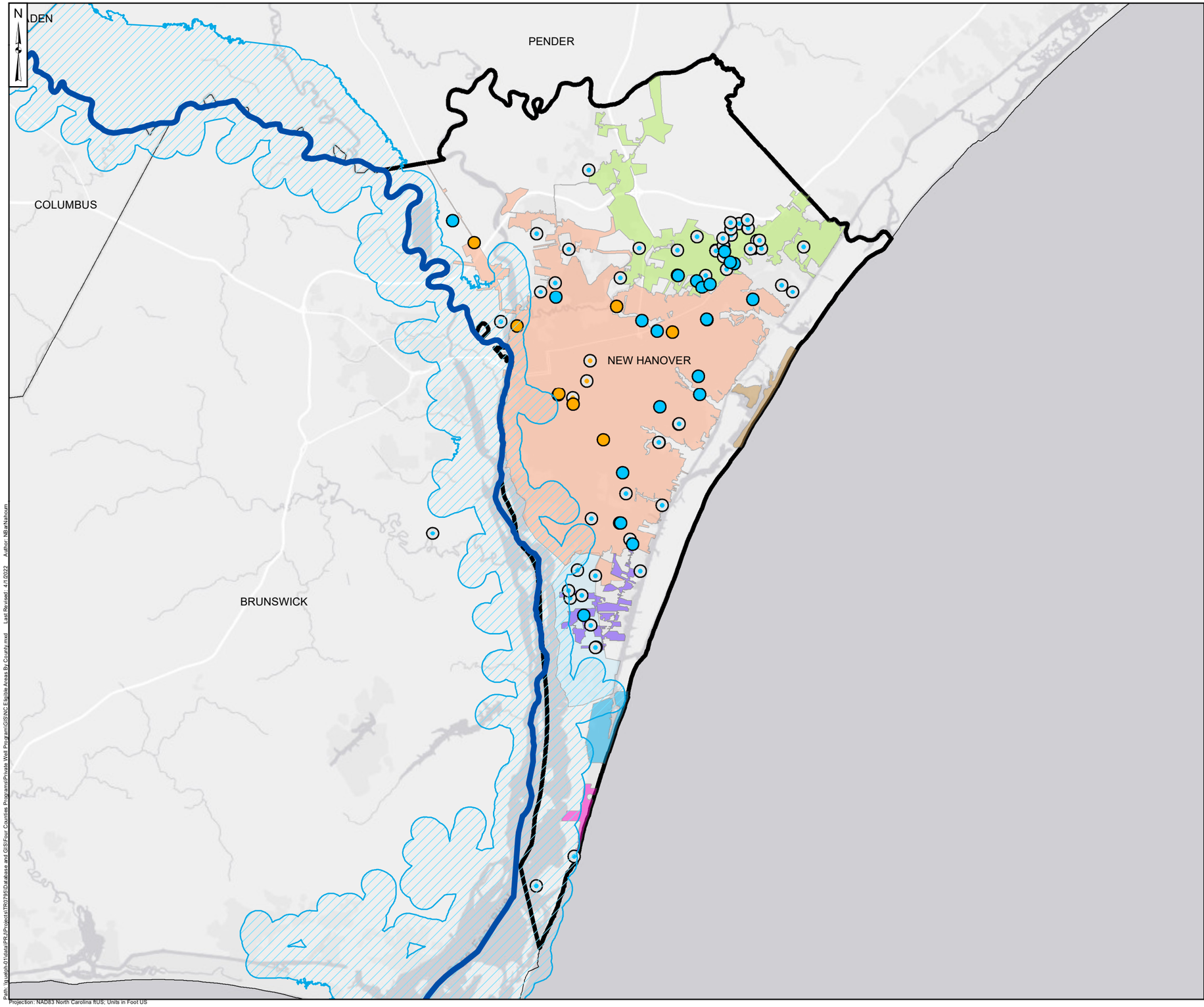
Figure **B.2**

Projection: NAD83 North Carolina ftUS; Units in Foot US



Legend

- NCDEQ Private Well Sampling Locations (Above the Consent Order Criteria[1])
- NCDEQ Private Well Sampling Locations (Below the Consent Order Criteria[1])
- NCDEQ PFAS Sampling Locations (Above the Consent Order Criteria[1])
- NCDEQ PFAS Sampling Locations (Below the Consent Order Criteria[1])
- Cape Fear River
- County Boundary
- Surrounding North Carolina County
- 100-Year Floodplain Associated with Cape Fear River[2]

New Hanover County Public Water Service

- Town of Carolina Beach
- Town of Kure Beach
- Town of Wrightsville Beach
- Monterey Heights Groundwater
- Sweeney Treatment Plant
- Richardson Nano Filtration
- Cape Master

Notes:

1. Any single Attachment C PFAS compound is greater than or equal to 10 nanograms per liter (ng/L), the sum of the Attachment C PFAS compounds is greater than or equal to 70 ng/L, or hexafluoropropylene oxide dimer acid (HFPO-DA) is greater than equal to 140 ng/L.
2. In addition to the extent of the 100-year floodplain associated with Cape Fear River (provided by the Federal Emergency Management Agency; FEMA), limits of saltwater marshes in the areas where Black River and Northeast Cape Fear River meet Cape Fear were included to account for the possibility of tidal backwash of Cape Fear River into these rivers. This criterion also includes the last half mile floodplain of each tributary before it joins the Cape Fear River.
3. Public and Private well data provided by The North Carolina Department of Environmental Quality (NCDEQ) on November and December 2021.
4. Public Water Service Areas for the Towns of Carolina Beach, Kure Beach, and Wrightsville Beach was downloaded from The Drinking Water Resilience Interactive Project (DRIP) site (http://drip.unctv.org/maps/maps-051716/).
5. Water service areas for the Monterey Heights Groundwater, Sweeney Treatment Plant, and Richardson Nano Filtration from Cape Fear Public Utility Authority (CFPUA) site was downloaded from ArcGIS Online Feature service (https://services.arcgis.com/UfH3YtFuVFnIN4Zz/ArcGIS/rest/services/Water ServiceArea/FeatureServer/0).
6. Cape Master Water System is based on North Carolina Water Quality Report (https://www.ncwaterquality.com/media/The-Cape-2021-Flushing-Master-Maps.pdf).
7. County Boundaries was downloaded from OneMap site (https://www.nconemap.gov).
8. The outline of the River shown on this figure is approximate (River outline based on compilation of open data sources from ArcGIS online service and North Carolina Department of Environmental Quality Online GIS - Major Hydro shapefile).
9. Basemap source: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community.

4 2 0 4 Miles

New Hanover County

Chemours Fayetteville Works
North Carolina

Geosyntec consultants

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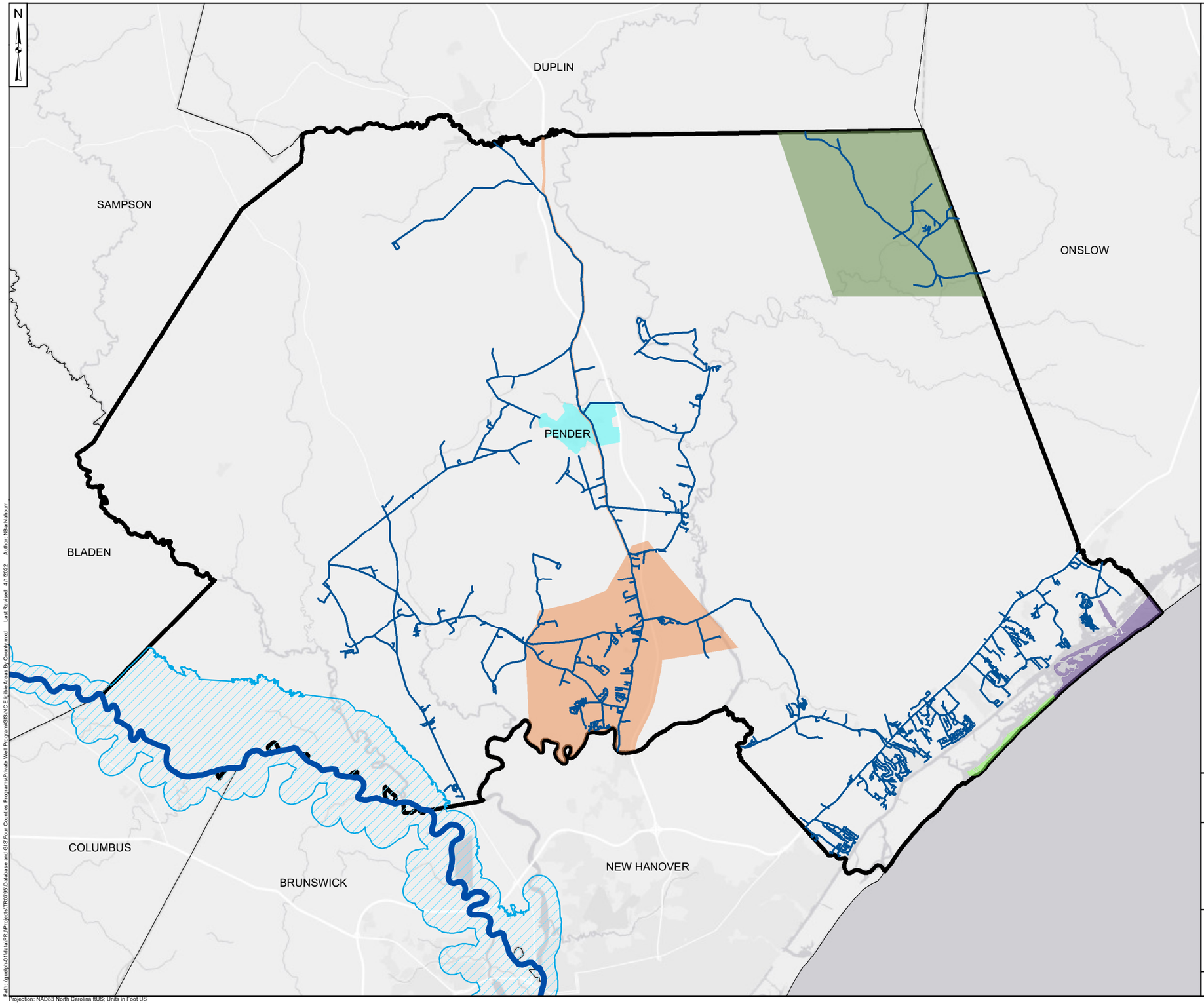
Figure **B.3**

Path: \\ualeph-01\data\PRJ\Projects\TR0795\Database and GIS\Four Counties Programs\Private Well Program\GIS\NC Eligible Areas By County.mxd Last Revised: 4/1/2022 Author: NBarNahoum

Projection: NAD83 North Carolina ftUS; Units in Foot US



Legend

- Cape Fear River
- County Boundary
- Surrounding North Carolina County
- 100-Year Floodplain Associated with Cape Fear River
- Public Water Supply Lines

Public Water Service

- Maple Hill Water District
- Rocky Pt/Topsail WS Dist
- Town of Burgaw
- Town of Surf City
- Town of Topsail Beach

Notes:

1. In addition to the extent of the 100-year floodplain associated with Cape Fear River (provided by the Federal Emergency Management Agency; FEMA), limits of saltwater marshes in the areas where Black River and Northeast Cape Fear River meet Cape Fear were included to account for the possibility of tidal backwash of Cape Fear River into these rivers. This criterion also includes the last half mile floodplain of each tributary before it joins the Cape Fear River.
2. Public Water Service Areas and the Public Water Supply Source were downloaded from The Drinking Water Resilience Interactive Project (DRIP) site (http://drip.unctv.org/maps/maps-051716/).
3. Public Water Supply Lines was downloaded from Pender County GIS data (https://gis.pendercountync.gov/arcgis/rest/services/Layers/MapServer/50).
4. County Boundaries was downloaded from OneMap site (https://www.nconemap.gov).
5. The outline of the River shown on this figure is approximate (River outline based on compilation of open data sources from ArcGIS online service and North Carolina Department of Environmental Quality Online GIS - Major Hydro shapefile).
6. Basemap source: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community.

4 2 0 4 Miles

Pender County

Chemours Fayetteville Works
North Carolina

Geosyntec consultants

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

Raleigh | April 2022

Figure **B.4**

Path: \\raleph-01\data\PRJ\Projects\TR0795\Database and GIS\Four Counties Programs\Private Well Program\GIS\NC Eligible Areas By County.mxd Last Revised: 4/1/2022 Author: NBarNahoum

Projection: NAD83 North Carolina ftUS; Units in Foot US

TABLE B.1
PFAS ANALYTES
Chemours Fayetteville Works, North Carolina

Common Name	PFAS Grouping (Method)			Chemical Name	CASRN	Chemical Formula
	Attachment C (Table 3+ SOP and Table 6)	Table 3+ (Table 3+ SOP)	Other PFAS (Method 537 Mod)			
HFPO-DA[1]	✓	✓	✓	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	801209-99-4	C4H2F8O4S
PES	--	✓	--	Perfluoro-2-ethoxyethanesulfonic acid	113507-82-7	C4HF9O4S
PS Acid	✓	✓	--	Ethanesulfonic acid, 2-[1-[difluoro[(1,2,2-trifluoroethenyl)oxy]methyl]-1,2,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-	29311-67-9	C7HF13O5S
Hydro-PS Acid	✓	✓	--	Ethanesulfonic acid, 2-[1-[difluoro(1,2,2,2-tetrafluoroethoxy)methyl]-1,2,2,2-tetrafluoroethoxy]-1,1,2,2-tetrafluoro-	749836-20-2	C7H2F14O5S
PFHpA[1]	✓	--	✓	Perfluoroheptanoic acid	375-85-9	C7HF13O2

TABLE B.1
PFAS ANALYTES
Chemours Fayetteville Works, North Carolina

Common Name	PFAS Grouping (Method)			Chemical Name	CASRN	Chemical Formula
	Attachment C (Table 3+ SOP and Table 6)	Table 3+ (Table 3+ SOP)	Other PFAS (Method 537 Mod)			
PFBA	--	--	✓	Perfluorobutanoic acid	375-22-4	C4HF7O2
PFPeA	--	--	✓	Perfluoropentanoic acid	2706-90-3	C5HF9O2
PFHxA	--	--	✓	Perfluorohexanoic acid	307-24-4	C6HF11O2
PFOA	--	--	✓	Perfluorooctanoic acid	335-67-1	C8HF15O
PFNA	--	--	✓	Perfluorononanoic acid	375-95-1	C9HF17O2
PFDA	--	--	✓	Perfluorodecanoic acid	335-76-2	C10HF19O2
PFUnA	--	--	✓	Perfluoroundecanoic acid	2058-94-8	C11HF21O2
PFDoA	--	--	✓	Perfluorododecanoic acid	307-55-1	C12HF23O2
PFTriA	--	--	✓	Perfluorotridecanoic acid	72629-94-8	C13HF25O2
PFTeA	--	--	✓	Perfluorotetradecanoic acid	376-06-7	C14HF27O2
PFHxDA	--	--	✓	Perfluorohexadecanoic acid	67905-19-5	C16HF31O2
PFODA	--	--	✓	Perfluorooctadecanoic acid	16517-11-6	C18HF35O2
PFBS	--	--	✓	Perfluorobutanesulfonic acid	375-73-5	C4HF9SO
PFPeS	--	--	✓	Perfluoropentanesulfonic acid	2706-91-4	C5HF11O3S
PFHxS	--	--	✓	Perfluorohexanesulfonic acid	355-46-4	C6HF13SO3
PFHpS	--	--	✓	Perfluoroheptanesulfonic acid	375-92-8	C7HF15O3S
PFOS	--	--	✓	Perfluorooctanesulfonic acid	1763-23-1	C8HF17SO3
PFNS	--	--	✓	Perfluorononanesulfonic acid	68259-12-1	C9HF19O3S
PFDS	--	--	✓	Perfluorodecanesulfonic acid	335-77-3	C10HF21O3S
PFDoDS	--	--	✓	Perfluorododecanesulfonic acid	79780-39-5	C12HF25O3S

TABLE B.1
PFAS ANALYTES
Chemours Fayetteville Works, North Carolina

Common Name	PFAS Grouping (Method)			Chemical Name	CASRN	Chemical Formula
	Attachment C (Table 3+ SOP and Table 6)	Table 3+ (Table 3+ SOP)	Other PFAS (Method 537 Mod)			
4:2 FTS	--	--	✓	4:2 Fluorotelomer sulfonic acid	757124-72-4	C6H5F9O3S
6:2 FTS	--	--	✓	6:2 Fluorotelomer sulfonic acid	27619-97-2	C8H5F13SO3
8:2 FTS	--	--	✓	8:2 Fluorotelomer sulfonic acid	39108-34-4	C10H5F17O3S
10:2 FTS	--	--	✓	10:2 Fluorotelomer sulfonic acid	120226-60-0	C12H5F21O3
NEtFOSAA	--	--	✓	N-ethyl perfluorooctane sulfonamidoacetic acid	2991-50-6	C12H8F17NO4S
NEtPFOSA	--	--	✓	N-ethylperfluoro-1-octanesulfonamide	4151-50-2	C10H6F17NO2S
NEtPFOSAE	--	--	✓	N-ethyl perfluorooctane sulphonamidoethanol	1691-99-2	C12H10F17NO3S
NMeFOSAA	--	--	✓	N-methyl perfluorooctane sulfonamidoacetic acid	2355-31-9	C11H6F17NO4S
NMePFOSA	--	--	✓	N-methyl perfluoro-1-octanesulfonamide	31506-32-8	C9H4F17NO2S
NMePFOSAE	--	--	✓	N-methyl perfluorooctane sulfonamidoethanol	24448-09-7	C11H8F17NO3S
PFOSA	--	--	✓	Perfluorooctane sulfonamide	754-91-6	C8H2F17NO2S
F-53B Major	--	--	✓	Perfluoro(2-((6-chlorohexyl)oxy)ethanesulfonic acid)	756426-58-1	C8HClF16O4S
F-53B Minor	--	--	✓	Perfluoro(2-((8-chlorooctyl)oxy)ethanesulfonic acid)	763051-92-9	C10HClF20O4S
DONA	--	--	✓	2,2,3-Trifluoro-3-(1,1,2,2,3,3-hexafluoro-3-(trifluoromethoxy)propoxy)propanoic acid	919005-14-4	C7H2F12O4

Notes:
1 - HFPO-DA and PFHpA can be analyzed under methods Table 3+ SOP and EPA Method 537 Mod.
CASRN - Chemical Abstract Service Registry Number
EPA - Environmental Protection Agency
PFAS - Per- and Polyfluoroalkyl substances
SOP - Standard Operating Procedure

TABLE B.2
ADDITIONAL ANALYTES
Chemours Fayetteville Works, North Carolina

Other Analytes	Lab Method
Antimony	200.7 Rev. 4.4
Arsenic	200.7 Rev. 4.4
Barium	200.7 Rev. 4.4
Beryllium	200.7 Rev. 4.4
Cadmium	200.7 Rev. 4.4
Calcium	200.7 Rev. 4.4
Chromium	200.7 Rev. 4.4
Cobalt	200.7 Rev. 4.4
Copper	200.7 Rev. 4.4
Iron	200.7 Rev. 4.4
Lead	200.7 Rev. 4.4
Magnesium	200.7 Rev. 4.4
Manganese	200.7 Rev. 4.4
Molybdenum	200.7 Rev. 4.4
Nickel	200.7 Rev. 4.4
Potassium	200.7 Rev. 4.4
Selenium	200.7 Rev. 4.4
Silver	200.7 Rev. 4.4
Sodium	200.7 Rev. 4.4
Strontium	200.7 Rev. 4.4
Vanadium	200.7 Rev. 4.4
Zinc	200.7 Rev. 4.4
Chloride	300.0
Fluoride	300.0
Nitrate	300.0/353.2
Nitrite	300.0/353.2
Sulfate	300.0
1,4-Dioxane	522
Total Coliforms by Presence/Absence	9222B
Total Dissolved Solids	SM 2540 C
Total Phosporus	200.7 Rev. 4.4