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FRAMEWORK TO ASSESS TABLE 3+ PFAS IN NEW HANOVER, BRUNSWICK, COLUMBUS, AND PENDER COUNTIES

Chemours Fayetteville Works

Prepared for

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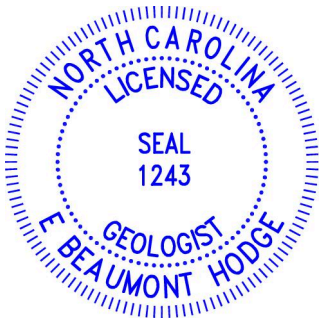

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EXECUTIVE SUMMARY

This document was prepared by Geosyntec Consultants of NC, P.C. (Geosyntec) for The Chemours Company FC, LLC (Chemours) to provide a framework to assess Table 3+ per- and polyfluoroalkyl substances (PFAS)[1] in soil and groundwater in New Hanover, Brunswick, Columbus, and Pender Counties (the counties) of North Carolina. This framework has been prepared in response to a letter sent to Chemours by the North Carolina Department of Environmental Quality (NCDEQ) on 3 November 2021 (NCDEQ 2021). The letter requested Chemours perform an assessment of Table 3+ PFAS that meets the requirements of 15A North Carolina Administrative Code (NCAC) 2L .0106(g) (i.e., 2L rules) and paragraph 18 of the February 25, 2019, Consent Order (CO) amongst Chemours, NCDEQ, and Cape Fear River Watch. This framework has been revised in response to comments sent to Chemours by NCDEQ on 28 March 2022. The assessment will characterize the following, as described in the 2L Rules:

- The source and cause of contamination.
- Any imminent hazards to public health and safety and any actions taken to mitigate them.
- Receptors and significant exposure pathways.
- The horizontal and vertical extent of soil and groundwater contamination impact and significant factors affecting contaminant transport.
- Geological and hydrogeological features influencing the movement, chemical, and physical character of the contaminants.

In addition to the assessment request, NCDEQ also requested Chemours provide a drinking water plan to identify and provide replacement drinking water to qualifying parties. Geosyntec's 2022 document, *Interim Four Counties Sampling and Drinking Water Plan (New Hanover, Brunswick, Columbus, and Pender Counties)*, separately submitted by Chemours on 1 February 2022 and revised on 1 April 2022, includes groundwater sampling from private wells in these counties. The results from both the assessment proposed herein and from private well sampling will inform each other.

The soil and groundwater assessment has begun with data gathering from the counties to guide further implementation of the assessment. The counties encompass an area of over 2,900 square miles, and little is currently known about either the potential distribution of Table 3+ PFAS in the counties or the potential source and cause of Table 3+ PFAS within the counties. Subsequently, sampling work plans will be prepared and the results from both programs will be interpreted to prepare a soil and groundwater assessment report. As requested by NCDEQ, the data gathering stage will conclude on Saturday, 28 May 2022 – two months after receipt of the comments letter on the assessment from NCDEQ on 28 March 2022.

[1] Table 3+ PFAS are often attributed to operations at the Chemours Fayetteville Works Site (Geosyntec 2021a).

To initiate the assessment program, Geosyntec has reviewed PFAS data presently available from NCDEQ from the counties, developed potential hypotheses about the potential source and cause of Table 3+ PFAS presence along with conceptual plans to evaluate these hypotheses, and submitted records requests to ten different entities (NCDEQ, counties, utilities, and towns).

On November 3, 2021, NCDEQ posted to their website[2] PFAS data from groundwater samples collected from NCDEQ and Cape Fear Public Utility Authority (CFPUA) non-private wells between 2019 and 2021. These data were supplemented with additional PFAS data from groundwater samples collected from different wells, including public supply and emergency wells, provided to Chemours on behalf of NCDEQ via email on December 5, 2021. Assessing the 395 sample results provided by NCDEQ (11 from private wells and 384 from non-private and monitoring samples between 2019 and 2021 from upwards of 100 wells) indicate that both Method 537 PFAS and Table 3+ PFAS were detected in New Hanover County. PFAS compounds analyzed by Method 537, many of which are not associated with the facility – for example Perfluorooctanesulfonic acid (PFOS) – were detected in samples more frequently than Table 3+ PFAS.

The four retained source and cause hypotheses are:

1. Leaking potable water distribution pipes and sanitary sewers that convey water sourced from the Cape Fear River.
2. Direct application and/or injection to downstream areas by Cape Fear River water users.
3. Aquifer recharge by the Cape Fear River.
4. Land application of biosolids.

Sampling plan(s) to evaluate each of these hypotheses and collect samples at background locations likely to not be impacted by mechanisms proposed above, will be developed using information collected during the data gathering stage. Geosyntec has begun compiling some of this information from publicly available sources and requested other information from NCDEQ, New Hanover County, Brunswick County, Columbus County, Pender County, Town of Carolina Beach, Town of Wrightsville Beach, Lower Cape Fear Water and Sewer Authority (LCFWASA), CFPUA, and Aqua of North Carolina, Inc. (Aqua of NC, Inc.) The sampling plan(s) will be submitted to NCDEQ by Friday 26 August 2022 – 90 days after the completion of the data gathering stage.

In addition to evaluating the source and cause aspect of the assessment, the other assessment steps will be met through a combination of information from public sources such as the United States Geological Survey (USGS) reports and North Carolina public records, private well sampling results from the interim sampling and drinking water program, sampling of NCDEQ and USGS wells, and previously established fate and transport properties of Table 3+ PFAS.

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

Upon completing the stages outlined in this framework, Geosyntec will prepare a Soil and Groundwater Assessment Report to submit to NCDEQ. Progress towards completing this assessment will in part be governed by the responsiveness of various parties to records requests and subsequent access requests for investigative locations and potentially other limiting factors.

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ACRONYMS AND ABBREVIATIONS

ASR	Aquifer Storage and Recovery
CFPUA	Cape Fear Public Utility Authority
CO	Consent Order
dmt	dry metric tons
FEMA	Federal Emergency Management Agency
HFPO-DA	hexafluoropropylene oxide dimer acid
LCFWASA	Lower Cape Fear Water & Sewer Authority
NASA	National Aeronautics and Space Administration
NCAC	North Carolina Administrative Code
NCDEQ	North Carolina Department of Environmental Quality
NC DHHS	North Carolina Department of Health and Human Services
ng/L	nanograms per liter
PEPA	perfluoroethoxypropyl carboxylic acid
PFAS	per- and polyfluoroalkyl substances
PFMOAA	perfluoro-2-methoxyacetic acid
PFO2HxA	perfluoro(3,5-dioxahexanoic) acid
PMPA	perfluoromethoxypropyl carboxylic acid
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WWTP	wastewater treatment plant

1. INTRODUCTION

This document was prepared by Geosyntec Consultants of NC, P.C. (Geosyntec) for The Chemours Company FC, LLC (Chemours) to provide a framework to undertake an assessment of Table 3+ per- and polyfluoroalkyl substances (PFAS) in soil and groundwater in New Hanover, Brunswick, Columbus, and Pender Counties (the counties) of North Carolina. This framework has been prepared in response to a letter sent to Chemours by the North Carolina Department of Environmental Quality (NCDEQ) on 3 November 2021 (NCDEQ 2021). The letter indicated the presence of Table 3+ PFAS in groundwater based on private and non-private well sample results collected between 2019 – 2021 from a dataset posted to the NCDEQ website on November 3, 2021. The letter also requested Chemours perform an assessment of Table 3+ PFAS that meets the requirements of 15A North Carolina Administrative Code (NCAC) 2L .0106(g) (i.e., 2L rules) and paragraph 18 of the February 25, 2019 Consent Order (CO) amongst Chemours, NCDEQ and Cape Fear River Watch. The assessment will characterize the following, as described in the 2L Rules:

- The source and cause of contamination.
- Any imminent hazards to public health and safety and any actions taken to mitigate them.
- Receptors and significant exposure pathways.
- The horizontal and vertical extent of soil and groundwater contamination impact and significant factors affecting contaminant transport.
- Geological and hydrogeological features influencing the movement, chemical, and physical character of the contaminants.

In addition to the assessment request, NCDEQ also requested Chemours provide a drinking water plan to identify and provide replacement drinking water to qualifying parties. Chemours has separately submitted an *Interim Four Counties Sampling and Drinking Water Plan (New Hanover, Brunswick, Columbus and Pender Counties)* (Geosyntec, 2022) which includes the sampling of groundwater from private wells in the counties. The results from both the assessment proposed herein and from private well sampling will be used to prepare a soil and groundwater assessment report.

1.1 Framework Objectives and Assessment Sequence

The objective of the framework set forth in this document is to perform a soil and groundwater assessment of Table 3+ PFAS in the counties that follows the assessment requirements of the 2L rules. This framework includes interlinkages to the interim sampling and drinking water program since both programs will sample groundwater in the four counties. Therefore, the two programs will inform each other. The overarching framework for the assessment program and the point of information convergence with the interim sampling and drinking water program is shown below in Figure 1.

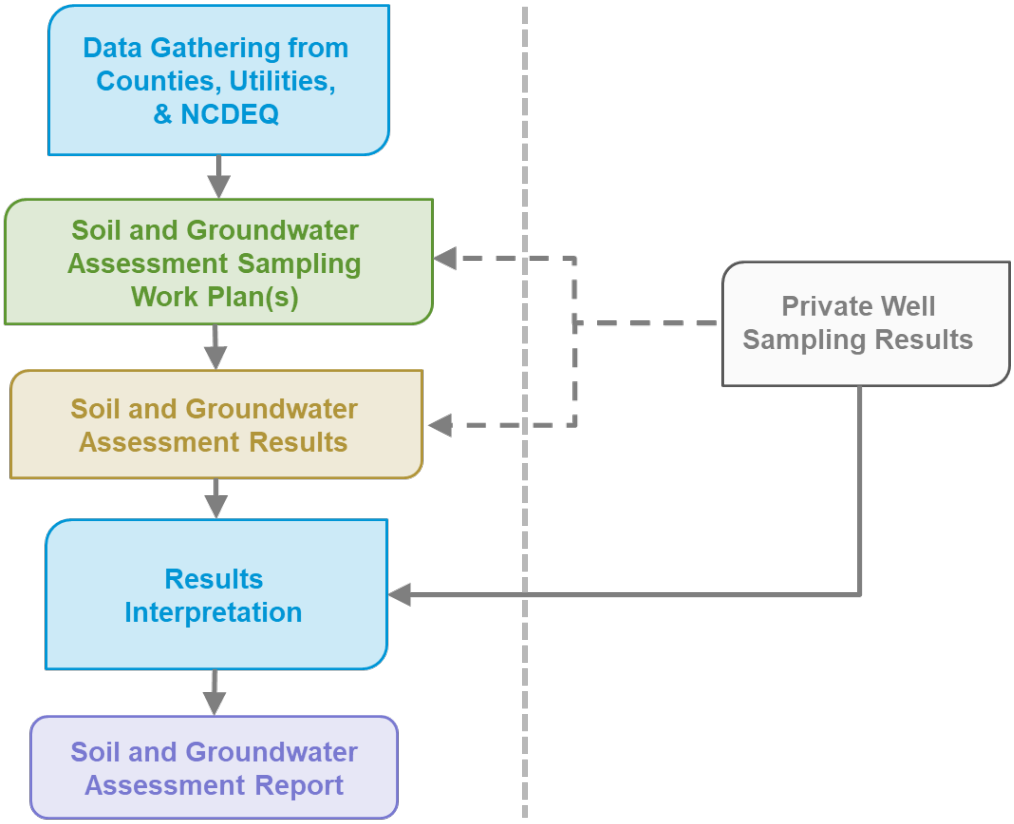

Figure 1 Framework for Soil and Groundwater Assessment Program.

The soil and groundwater assessment framework will start with a data gathering step to guide implementation of the assessment program. This step is critical; the counties encompass an area of over 2,900 square miles, and little is presently known about either the potential distribution of Table 3+ PFAS in the counties or the potential source and cause of Table 3+ PFAS within the counties. The data gathering step will support developing an initial conceptual model for the source and cause of the distribution of Table 3+ PFAS within the counties which will then enable the development of specific sampling plans from the conceptual plans presented in this framework. The data gathering stage will conclude on 28 May 2022 and will be followed by submission of sampling plan(s) to NCDEQ by 26 August 2022, i.e., 90 days after the conclusion of the data gathering stage.

Depending on the data available from the assessment framework and the drinking water program, Chemours may consider that additional sampling locations may be supportive in characterizing Table 3+ PFAS within the four counties to help support a representative assessment. After the implementation of the sampling plans and then the integration and evaluation of results from this assessment and results from the drinking water program along with potential additional sampling results, a soil and groundwater assessment report will be prepared and submitted.

1.2 Framework Organization

The remainder of this framework is organized as follows:

- **Section 2: Assessment Outcomes and Approaches** – which describes how the five primary requirements of the 2L Rules will be fulfilled.
- **Section 3: Source and Cause Hypotheses and Assessment** – which describes hypotheses for the presence of Table 3+ PFAS in the counties, conceptual plans to test each hypothesis and compile a list of data and access needs to prepare specific sampling work plans.
- **Section 4: Background Sampling** – which describes the quantity and approach for selecting locations that will inform the evaluation of background PFAS concentrations for comparison to investigative samples collected during the assessment.
- **Section 5**: **Summary, Implementation and Reporting** – which summarizes the content of this framework and outlines the schedule for the initial implementation steps.

2. ASSESSMENT OUTCOMES AND APPROACHES

The 2L rules list five requirements for conducting a soil and groundwater assessment. This section provides an overview of how each requirement will be met through this framework.

2.1 Source and Cause of Contamination

The assessment must include an analysis of "the source and cause of contamination[3]". At present, there is little information regarding the potential source and cause of Table 3+ PFAS within the counties. Section 3 describes potential hypotheses for the source and cause of Table 3+ PFAS in the counties and then presents conceptual investigation scopes to consider each hypothesis. This framework then describes information needed to prepare specific sampling work plans to consider these hypotheses.

2.2 Imminent Hazards

The assessment must include an analysis of, "any imminent hazards to public health and safety and any actions taken to mitigate them". Imminent hazards will be identified through the source and cause of contamination assessment and the interim sampling and drinking water program. The concentrations of hexafluoropropylene oxide dimer acid (HFPO-DA) in the private well data provided by NCDEQ is lower than the current North Carolina Department of Health and Human Services (NC DHHS) health goal of 140 nanograms per liter (ng/L; NC DHHS, 2017).

2.3 Receptor and Exposure Pathways

The assessment must include an analysis of, "receptors (to include as potential receptors drinking water wells and surface waters) and significant exposure pathways". Amongst other sources of information, potential receptors may be identified by reviewing:

1. Private well receptors identified through the *Interim Four Counties and Drinking Water Plan (New Hanover, Brunswick, Columbus and Pender Counties)* (Geosyntec, 2022). Well data from NC OneMap GeoSpatial Portal to identify public water supply wells.
2. Data on North Carolina wellhead protection areas from NCDEQ and using data on usage of public water supplies to identify wellhead protection areas.
3. Surface water data from the United States Geological Survey (USGS) National Hydrography Dataset to identify surface water bodies.

In addition to identifying receptors, significant exposure pathways will be identified by assessing the conceptual model developed from the assessment of the potential sources and causes of Table 3+ PFAS.

[3] Quote from NCDEQ's letter to Chemours on 3 November 2021.

2.4 Extent of Soil and Groundwater Contamination

The assessment must include an analysis of, "the horizontal and vertical extent of soil and groundwater contamination and all significant factors affecting contaminant transport". The extent of Table 3+ PFAS in soil and groundwater will be assessed through three lines of evidence. First, soil and groundwater samples collected during the source and cause assessment, second through private well sampling results from the interim sampling and drinking water program, and third from sampling of select NCDEQ and USGS groundwater monitoring wells in the counties. The factors affecting transport will be identified based on prior established fate and transport properties of Table 3+ PFAS, as well as hydrogeologic conditions in the counties.

2.5 Geological and Hydrogeological Features

The assessment must include an analysis of the "geological and hydrogeological features influencing the movement, chemical, and physical character of the contaminants". The geological and hydrogeological features controlling the movement of groundwater potentially containing Table 3+ PFAS will be described using information gathered from public sources and the results of the source and cause hypothesis testing investigation. Information from public sources may include regional geology and hydrogeology studies authored by the USGS, data from NCDEQ monitoring wells, and other data gathered from the counties and water utilities in the counties. The geological and hydrogeological conceptual model will then be examined alongside the known fate and transport properties of Table 3+ PFAS to analyze how these features control the movement, chemical, and physical character of Table 3+ PFAS.

3. SOURCE AND CAUSE HYPOTHESES AND ASSESSMENT

Geosyntec has developed six hypotheses that may potentially explain the presence of Table 3+ PFAS in the counties as identified by the groundwater sampling results provided by NCDEQ as of February 2022. Further data, which will aid in the refinement of these hypotheses or potentially influence new hypotheses, have been requested from the counties, various utility operators, and NCDEQ. These requested data are described in more detail in the following sub-sections and in Appendix A.

This section reviews the existing NCDEQ Table 3+ PFAS groundwater data in the counties and then describes each of the hypotheses, whether each hypothesis is retained for assessment, and how the retained hypotheses will be evaluated.

3.1 Available Table 3+ Data in the Four Counties

NCDEQ provided PFAS analytical results from 11 private wells (Appendix B and Figure 2) and from 384 samples collected between 2019 and 2022 from upwards of 100 non-private wells including public supply, service, and emergency wells in New Hanover County (Appendix C and Figure 3). Data from a single well in Brunswick County was provided. No PFAS analytical data were provided from wells in Pender or Columbus County. No PFAS analytical data were provided for soil from any of the counties.

The PFAS groundwater analytical data from private and non-private wells in New Hanover County contained both Method 537 PFAS and Table 3+ PFAS. Many Method 537 PFAS are not associated with the facility (e.g., PFOS[4]) while Table 3+ PFAS are often attributed to operations at the facility. In both the private and non-private wells, the Method 537 PFAS were detected at a frequency similar to or greater than Table 3+ PFAS, indicating that other non-Chemours sources are also likely contributing to groundwater PFAS detections.

Total Table 3+ PFAS[5] concentrations in private wells ranged from concentrations below detection limits at three sampling locations to a maximum value of 380[6] ng/L at one location (Table 1). Of the 194 unique sample identification codes in the non-private well datasets provided by NCDEQ, 109 samples were non-detect for Total Table 3+ PFAS. Detectable concentrations of Total Table 3+ PFAS in non-private wells ranged from 1 ng/L to 17,000 ng/L (Appendix C).

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4 PFOS: perfluorooctanesulfonic acid

5 As reported in the *Matrix Interference During Analysis of Table 3+ Compounds* memorandum (Geosyntec, 2020), matrix interference studies conducted by the analytical laboratory (TestAmerica, Sacramento) have shown that the quantitation of three compounds (R-PSDA, Hydrolyzed PSDA, and R-EVE) is inaccurate due to interferences by the sample matrix in both groundwater and surface water. 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+ (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+ (20 compounds)"

6 Individual compound results were rounded to two decimal places.

Table 1 Summary of NCDEQ Private and Non-Private Well Dataset

Source of Data	Number of Samples with Detections of Table 3+ PFAS	Number of Samples with Detections of Method 537 PFAS
Private wells	8/11	9/11
Non-private wells	150/384	218/384

Notes:

Data used to populate this table were provided by NCDEQ. The NCDEQ dataset included PFAS analytical results from 11 groundwater samples from private wells and 384 samples from non-private wells.

Method 537 PFAS represent compounds not specifically attributed to the Facility and may represent contributions from other PFAS sources.

For the 395 private and non-private wells sample data posted by NCDEQ with Table 3+ PFAS detections, PFMOAA is the most commonly detected Table 3+ compound, found in 143 of 158 samples with Table 3+ PFAS detections. PFMOAA is also the highest concentration Table 3+ PFAS in 134 of the 143 samples where PFMOAA was detected (Table 2). This indicates a connection with the permitted discharges from the Facility to the Cape Fear River between 1979 and 2017, which contained PFAS and for which the process water signature is associated with higher PFMOAA concentrations (Geosyntec, 2021a). This, in turn, suggests that Cape Fear River water withdrawals and usage may potentially contribute to these NCDEQ sampling detections, as is explored in the subsequent hypotheses.

Table 2 Summary of PFMOAA Data from NCDEQ Private and Non-Private Well Dataset

Source of Data	Number of Samples with Table 3+ PFAS Detections	Number of Samples with PFMOAA Detections	Number of Samples where PFMOAA was the Highest Concentration Table 3+ PFAS compound
Private wells	8/11	8/11	8/11
Non-private wells	150/384	135/384	126/384

Notes:

Data used to populate this table were provided by NCDEQ. The NCDEQ dataset included PFAS analytical results from 11 groundwater samples from private wells and 384 groundwater samples from non-private wells.

The Cape Fear River, which is bordered by the counties, also contains Table 3+ PFAS. The pathways described in the mass loading model site conceptual model contributing the most Table 3+ PFAS mass loading (i.e., groundwater, seeps, etc.) to the river have process water signatures (Geosyntec 2019). Data from Cape Fear River sampling locations downstream of the Site from 2019 through 2021 show that PFMOAA is the most commonly detected Table 3+ PFAS compounds as shown in Table 3.

Table 3 Summary of Table 3+ PFAS Detection in Cape Fear River Surface Water

Description of Analysis	Occurrence in 2019 Samples	Occurrence in 2020 Samples	Occurrence in 2021 Samples
Total Number of Samples Collected	17	139	157
Samples with PFMOAA as the highest concentration	17 (100%)	95 (68%)	96 (61%)
Samples with PFMOAA as the second highest concentration	0	18 (13%)	35 (22%)
Samples with PFMOAA as the third highest concentration	0	6 (4%)	5 (3%)
Total percent representation of PFMOAA as the highest to third highest concentration compound within the dataset	100%	85%	86%

Notes:

Data used to populate this table was obtained from Chemours surface water sampling programs from 2019 through 2021.

Between 1979 and 2017, fluoroproduct process wastewater from the Facility was directed to the onsite wastewater treatment plant (WWTP) for pH neutralization prior to permitted discharge to the Cape Fear River at Facility outfalls (Geosyntec, 2021a). This sequence would have resulted in the Table 3+ PFAS potentially present in the process wastewater also being present in the Cape Fear River. Historical Cape Fear River PFAS concentrations are also interpreted to have been higher than present concentrations. For instance, HFPO-DA concentrations in the Cape Fear River during 2021 ranged from 2 to 92 ng/L, whereas Cape Fear River samples taken between June 19 and 22, 2017 show river HFPO-DA concentrations of 629 to 1,100 ng/L (Geosyntec, 2019c). PFMOAA is interpreted to have also been present at concentrations greater than HFPO-DA in the Cape Fear River between 1979 and 2017 since measurements of process water samples and groundwater samples with process water signatures show PFMOAA being present at higher concentrations than HFPO-DA (Geosyntec, 2019c).

These data were used to inform the development of these hypotheses about the sources of contamination.

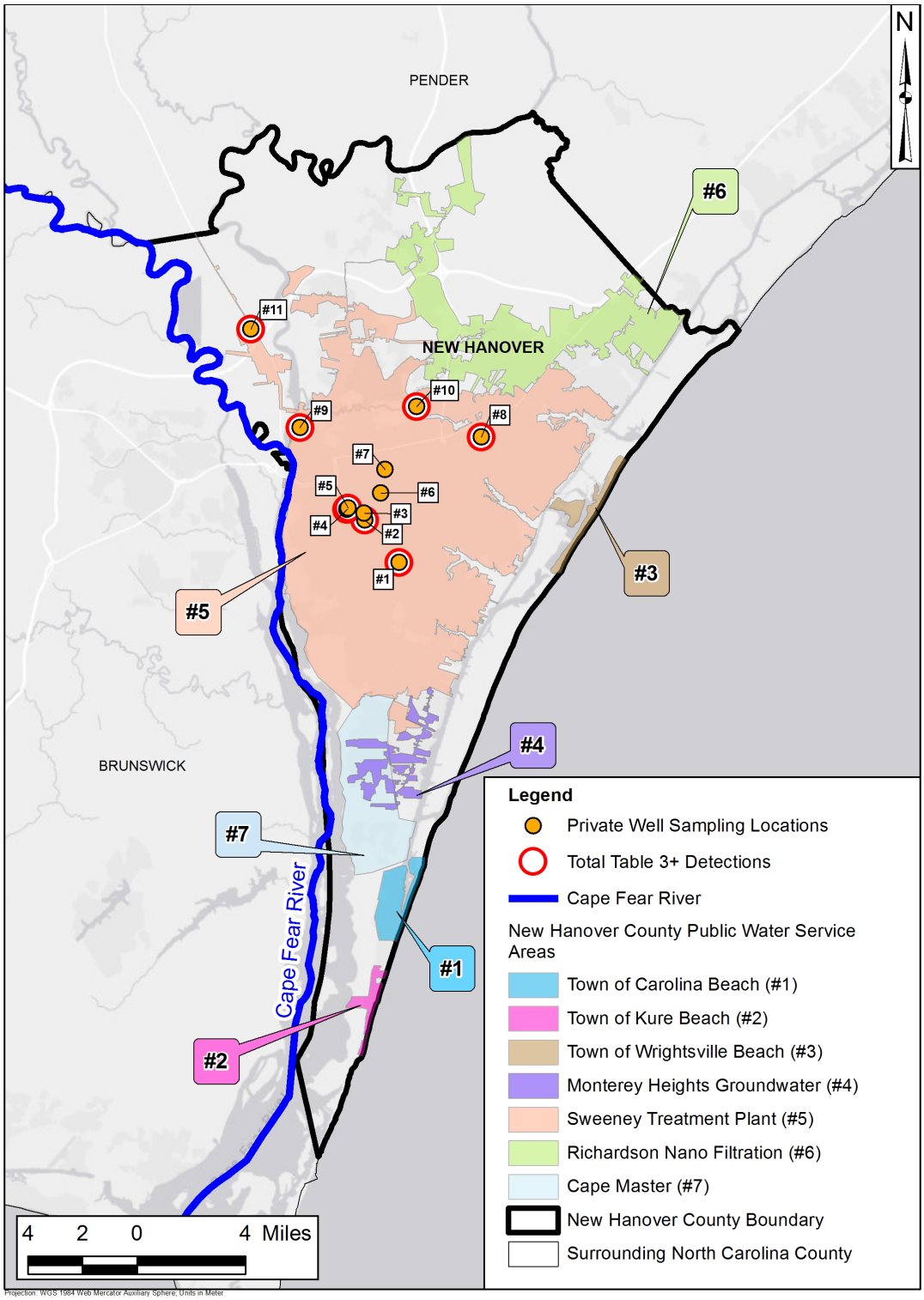

Figure 2 New Hanover County Private Well Sampling Locations from NCDEQ November 3, 2021 Dataset.

Notes:

Sampling locations are enumerated and correspond to Location IDs listed in Appendix B.

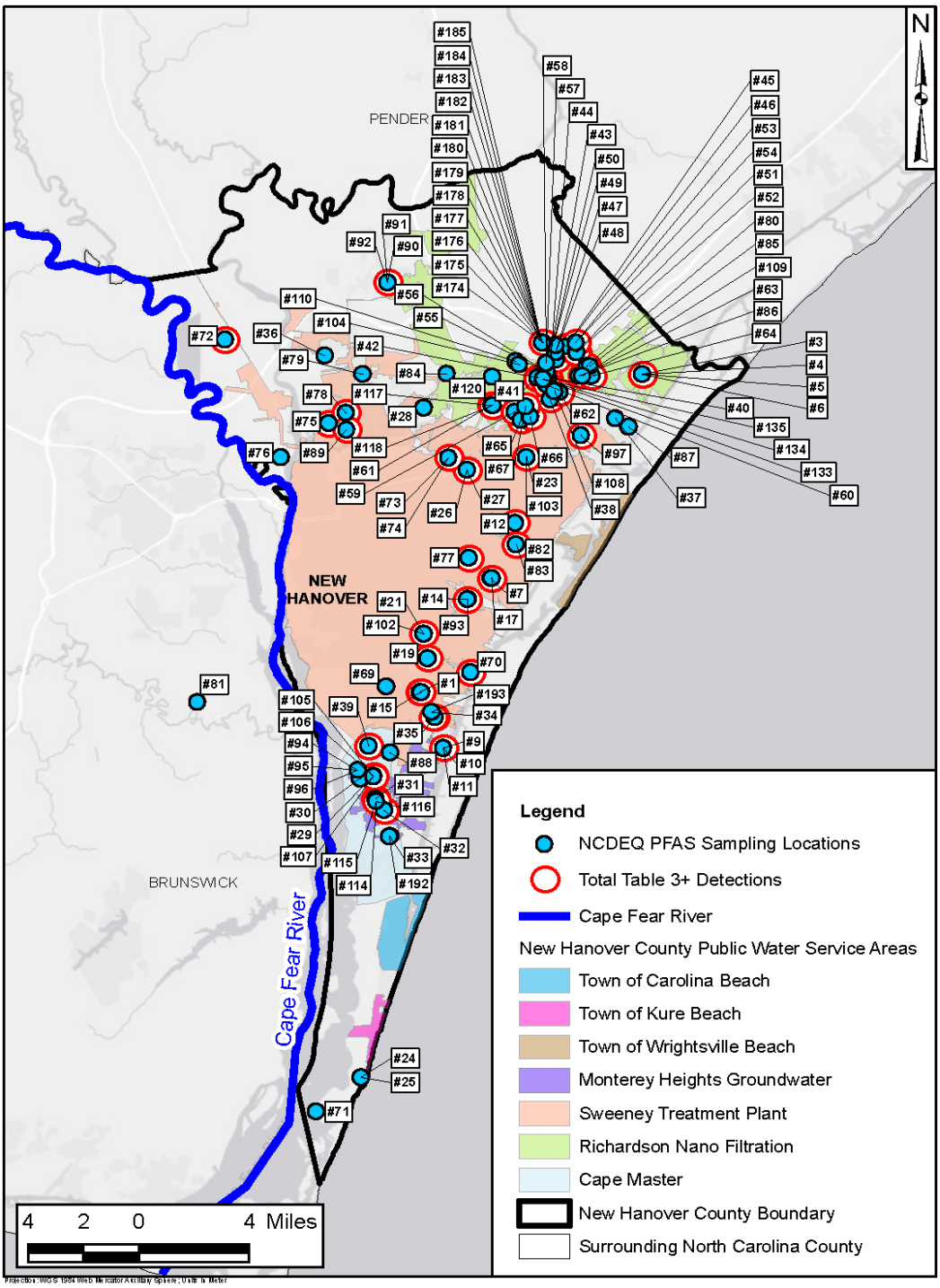

Figure 3 New Hanover County Non-Private Well Sampling Locations from NCDEQ November 3, 2021 Dataset.

Notes:

Sampling locations are enumerated and correspond to Location IDs listed in Appendix C.

3.2 Source and Cause Hypotheses

Hypotheses that may potentially explain the source and cause of contamination were developed using Table 3+ PFAS data in the counties, information from prior assessment programs, and an initial review of hydrogeology, hydrology, and geomorphology of the counties. These hypotheses and whether or not they are retained for further assessment, are listed in Table 4, below. Information and data from 1979 to present will be considered when evaluating each hypothesis, since during the period of 1979 to 2017, process water was released to the Cape Fear River through permitted discharges. After 2017, process water with PFAS at the Facility has been collected and sent for off-site disposal, reducing the yearly HFPO-DA loading to the Cape Fear River by over 95 percent (Geosyntec 2019). Additional mechanisms for the source and cause of Table 3+ PFAS in the counties may also exist that may not be considered in these hypotheses. As new information and data are made available, the hypotheses described below may or may not be retained.

Table 4 List of Table 3+ PFAS Groundwater Source and Cause Hypotheses

Hypothesis Number	Description	Hypothesis is Retained (Yes or No)
1	Leaking potable water distribution pipes and sanitary sewers that convey water from the Cape Fear River	Yes
2	Direct application and injection to downstream areas by Cape Fear River water users	Yes
3	Aquifer recharge by the Cape Fear River	Yes
4	Land application of biosolids	Yes
5	Aerial deposition from the Facility air emission sources	No
6	Groundwater transport from the Facility	No

The hypotheses listed above are described in further detail in the following sub-sections. Each sub-section introduces the hypothesis, evaluates if the hypothesis is retained, describes the general approach for evaluating retained hypotheses, and then describes the information and access requirements to assess these hypotheses. Hypotheses are not retained if they are shown to be inconsistent with observations or not possible in principle. The general approach for evaluating retained hypotheses describes the type of locations where the hypotheses would be evaluated and considerations for choosing investigative locations.

3.2.1 Hypothesis #1: Leaks in Water Distribution and Sanitary Sewer Lines

Hypothesis 1 posits that water leaking from potable water distribution systems and sanitary sewer networks in the counties has led to Table 3+ PFAS compounds being present in groundwater. This hypothesis is retained for additional assessment since water from the Cape Fear River is believed to have contained Table 3+ PFAS since 1979, and this water has been used in certain potable water distribution systems and collected after use by sanitary sewer systems in these counties.

The United States Environmental Protection Agency (USEPA) reports that an average of 14% of potable water distributed by water systems in the United States is lost to leakage (USEPA, 2021). The magnitude of water losses from a distribution system may be influenced by the age of infrastructure, catastrophic events like pipe damage, and the quality of system construction. Water losses due to leaking infrastructure can be detected by analyzing meter readings, comparing predicted versus measured flow rates, and by reports of pooling or pipe bursts from water consumers.

After distributed potable water is used, it is collected by sanitary sewer networks and conveyed to WWTPs. Sanitary sewer exfiltration from damaged infrastructure may occur and is influenced by the age of infrastructure, size of network, construction materials and quality, and depth of flow in sewer (Amick and Burgess 2000). Geological factors such as groundwater depth (which influences pressure differentials), soil type, and fault lines can also contribute to sewer exfiltration (Amick and Burgess 2000). Finally, factors such as average annual rainfall and average days of frost can affect sewer line integrity (Amick and Burgess 2000).

3.2.1.1 Assessment of Hypothesis

This hypothesis will be assessed in two steps. Relevant data to plan the investigation will be gathered and compiled and then four representative locations where leaking may have occurred will be selected and assessed. Data for planning the investigation will include identifying the following:

- Potable water distribution systems in the counties that utilized Cape Fear River water between years 1979 and 2017
- Sanitary sewer systems in the counties that accepted water originally sourced from the Cape Fear River between 1979 and 2017
- Locations of known potable water distribution network and sanitary system leaks where Cape Fear River water was the source of potable water between 1979 and 2017
- The location of water treatment plants and WWTPs using Cape Fear River water between 1979 and 2017

Up to four representative locations will be selected where property access can be obtained and sampling activities safely conducted. At each location, temporary groundwater sampling points will be installed and co-located surface soil and sub-surface soil samples collected. For groundwater sampling, the specific groundwater zones / aquifers to be assessed will be determined based on anticipated location geology. These will be specified in the upcoming sampling plan(s) and may be modified during installation based on field observations. If at a location more than one groundwater zone is potentially being assessed Table 3+ PFAS will be first analyzed for in samples from upper groundwater zone and then if detected, samples from the lower groundwater zone will be analyzed.

At each location, groundwater flow patterns will be inferred based on knowledge of area geology, land surface contours, and aquifer maps to guide the positioning of sampling locations. Sampling

locations will be positioned downgradient and upgradient of known leak locations. The upgradient locations are not expected to have Table 3+ PFAS from the Cape Fear River and will thus serve as investigative control locations. Groundwater and soil samples will be collected and analyzed for Table 3+ and EPA 537 Modified PFAS compounds. Additional parameters, outlined in Appendix D, may also be evaluated to differentiate the source of Table 3+ PFAS from either a drinking water distribution system or a sanitary sewer network and ambient groundwater. The investigative locations to be selected will be distant from PFAS transport pathways associated with other hypotheses, e.g., direct application from Cape Fear River water users, etc., to reduce the possibility of confounding factors during data interpretation.

3.2.1.2 Data Gathering and Compilation

To support the selection of possible investigation areas, Geosyntec has begun gathering and collecting data from both publicly available online sources and through transmitting data request letters to NCDEQ, each of the counties, Lower Cape Fear Water and Sewer Authority (LCFWASA), Cape Fear Public Utility Authority (CFPUA), Aqua of NC, Inc., Town of Wrightsville Beach, and Town of Carolina Beach. As the data gathering and compilation step continues, additional organizations may also be contacted. Letters that have been sent through January 31, 2022 are provided in Appendix A and the content of the requests are summarized in Table 5.

Table 5 Summary of Data Requested to Complete Assessment of Water Distribution and Sanitary Sewer System

Data Needs
Digital computerized map of drinking water supply lines
Additional information about drinking water supply lines, including the asset ages, construction material, diameter, and inverts
Map of sanitary sewer system
Additional information about sanitary sewer system, including the asset ages, construction material, diameter, and inverts
Any data (and relevant information, including but not limited to laboratory EDDs and sample collection information, etc.) indicating the presence of Table 3+ PFAS in water sources
Data about water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations)
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;
Locations where surface water from the Cape Fear River was injected into subsurface aquifers

Notes:
Data needs reflect information that would support an assessment of whether Table 3+ PFAS was circulated through drinking water and sanitary sewer systems in the counties. Geosyntec has submitted these data requests to each of the counties, Carolina Beach, Wrightsville Beach, LCFWASA, CFPUA, and Aqua of NC, Inc.

Through January 31, 2022, Geosyntec has compiled identified or received information, summarized in Appendix E, which will be supplemented and verified against information received from NCDEQ, the counties and the various utilities. This information includes lists of water treatment plants and water distribution systems potentially using Cape Fear River Water and WWTPs potentially receiving sanitary water originally from the Cape Fear River.

3.2.2 Hypothesis #2: Direct Application or Injection to Downstream Areas by Cape Fear River Water Users

Hypothesis 2 posits that land and water management practices using Cape Fear River water directly for irrigation, Aquifer Storage and Recovery (ASR), or other various uses may have recharged aquifers with Cape Fear River water and in this manner introduced Table 3+ PFAS compounds. This hypothesis is retained for additional assessment since the Cape Fear River water is believed to have contained Table 3+ PFAS since 1979, and this water has been used in certain land and water management practices in the counties.

3.2.2.1 Assessment of Hypothesis

This hypothesis will be assessed in two steps. Relevant data to plan the investigation will be gathered and compiled and then, two representative locations where this recharge may have occurred will be selected and assessed. Data for planning the investigation will include compiling a list of large-scale Cape Fear River water users between 1979 and 2017. This will include gathering data as follows:

- List of parties permitted to draw Cape Fear River water since 1979 (Source: NCDEQ).
- Records review of customers of LCFWASA, Aqua of NC, Inc., CFPUA, and other utilities.
- Identification of farmland practices and locations using Cape Fear River water for irrigation.
- Review of CFPUA records of ASR program (volumes injected, dates operational, etc.).

Geosyntec has begun the process of requesting water usage records from each of the counties, LCFWASA, CFPUA, and Aqua of NC, Inc. and has compiled data regarding LCFWASA water customers and water withdrawal registrants in the counties.

Two representative locations will be selected where property access can be obtained and sampling activities safely conducted. At each location, temporary groundwater sampling points will be installed and co-located surface soil and sub-surface soil samples collected. For groundwater sampling, the specific groundwater zones / aquifers to be assessed will be determined based on anticipated location geology. These will be specified in the upcoming sampling plan(s) and may be modified during installation based on field observations. If at a location more than one groundwater zone is potentially being assessed Table 3+ PFAS will be first analyzed for in samples from upper groundwater zone and then if detected, samples from the lower groundwater zone will be analyzed.

Sampling locations will be positioned to include areas where recharge has occurred and locations downgradient and upgradient. The upgradient locations, are expected to not have Table 3+ PFAS from the Cape Fear River will serve as investigative control locations. Groundwater and soil samples will be collected and analyzed for Table 3+ and EPA 537 Modified PFAS compounds; collected samples may also be analyzed for other parameters such as those listed in Appendix D. The investigative locations to be selected will be distant from PFAS transport pathways associated with other hypotheses, e.g., leaking water distribution pipes, etc., to reduce the possibility of confounding factors during data interpretation.

3.2.3 Hypothesis #3: Aquifer Recharge by Cape Fear River

Hypothesis 3 posits that the Cape Fear River may have possibly recharged aquifers adjacent to the river, particularly during periods of flooding and thus have introduced the Table 3+ PFAS present in river water into these aquifers. This hypothesis is retained for additional assessment.

3.2.3.1 Assessment of Hypothesis

This hypothesis will be assessed in two steps. Relevant data to plan the investigation will be gathered and compiled and then two representative locations where recharge may have occurred will be selected and assessed. Data for planning the investigation will include identifying low lying areas along the Cape Fear River in the counties where flooding has occurred between 1979 to 2017 and identifying areas where the Cape Fear River may be a losing stream in the counties based on publicly available resources. This evaluation will consider amongst other sources of data Federal Emergency Management Agency (FEMA) floodplain maps and/or resources from Landsat or The National Aeronautics and Space Administration (NASA).

Two investigative areas will be selected where property access can be obtained and sampling activities safely conducted. At each area, temporary groundwater sampling points will be installed and co-located surface soil and sub-surface soil samples collected. For groundwater sampling, the specific groundwater zones / aquifers to be assessed will be determined based on anticipated location geology. These will be specified in the upcoming sampling plan(s) and may be modified during installation based on field observations. If at a location more than one groundwater zone is potentially being assessed Table 3+ PFAS will be first analyzed for in samples from upper groundwater zone and then if detected, samples from the lower groundwater zone will be analyzed.

Sampling points will be positioned in the areas which have experienced Cape Fear River flooding or recharge, and other sampling locations will be positioned upland where Cape Fear River flooding has not occurred to serve as control locations where Table 3+ PFAS detections are not expected. Groundwater and soil samples will be collected and analyzed for Table 3+ and EPA 537 Modified PFAS compounds. These samples may also be analyzed for other parameters such as those listed in Appendix D. The investigative locations to be selected will be distant from PFAS transport pathways associated with other hypotheses, e.g., leaking water distribution pipes, etc., to reduce the possibility of confounding factors during data interpretation.

3.2.4 Hypothesis #4: Land Application of Biosolids

Hypothesis 4 posits that Table 3+ PFAS may have accumulated in biosolids at wastewater treatment facilities or other facilities that generate biosolids and utilized water containing Table 3+ PFAS. The potential subsequent land application of these biosolids would present a source of Table 3+ PFAS to underlying groundwater. This hypothesis is retained for additional assessment.

3.2.4.1 Assessment of Hypothesis

Biosolids can serve as a soil enrichment to either supplement or substitute commercial fertilizers (USEPA 2022a). In a USEPA 2019 survey, 51% of 2,200 wastewater treatment facilities in the United States reported that biosolids were disposed of via land application (~2.44 million dry metric tons [dmt]; USEPA 2022b). Approximately 1.4 million dmt were applied to agricultural land and the remaining mass was applied to land designated for non-agricultural use (e.g. parks and/or golf courses; USEPA 2022a).

This hypothesis will be assessed in two steps. Relevant data to plan the investigation will be gathered and compiled. One investigative area will be identified in each county. The selected area will have had biosolids applied prior to June 2017 and sourced those biosolids from a facility that utilized Table 3+ PFAS water historically. Three locations per investigative area will have soil samples collected. A control location will be identified as an area that either received biosolids/fertilizers from a location that was not likely to use water containing Table 3+ PFAS, or from a location that did not use biosolids.

To aid in identifying facilities that may have distributed biosolids with Table 3+ PFAS, wastewater treatment facilities known to process water containing Table 3+ PFAS (i.e., wastewater treatment plants for systems that utilized Cape Fear River surface water) within each county may receive a letter from Chemours requesting information about the management, sale, land application, or disposal of biosolids and will request a list of end-users, either agricultural or non-agricultural. Properties accepting biosolids for land application will be identified using the NCDEQ Division of Water Resources Non-Discharge Branch Permit Facility Map. Prior to sampling, property access will be requested, and an evaluation of sampling safety will be performed.

Soil samples from control and investigative locations will be collected and both bulk soil and soil leachate will be analyzed for Table 3+ and EPA 537 Modified PFAS compounds. These samples may also be analyzed for other parameters such as those listed in Appendix D. If a private property is selected for biosolids sampling, the investigative locations to be selected will be distant from PFAS transport pathways associated with other hypotheses, e.g., leaking water distribution pipes, etc., to reduce the possibility of confounding factors during data interpretation. If the leachate samples indicate the presence of Table 3+ PFAS in soils that had received biosolids applications, then a subsequent field effort will be conducted to sample groundwater to evaluate if the biosolids potentially in the soils potentially contributed Table 3+ PFAS to the underlying groundwater.

3.2.5 Hypothesis #5: Aerial Transport from Facility

Hypothesis 5 posits that the source of PFAS is from Facility air emissions that contained Table 3+ PFAS compounds and these may have been aerially transported to and then deposited in the counties. As described in the conceptual site model from the On and Offsite Assessment Report, aerial deposition has resulted in a distributed, non-point secondary source of PFAS in onsite and offsite soils (Geosyntec, 2019b). Where aerial deposition has occurred, infiltrating rainfall has transported these PFAS downward to groundwater (Geosyntec, 2019b). This hypothesis is not retained based on assessment of the hypothesis using existing data.

3.2.5.1 Assessment of Hypothesis

At the Facility, two Table 3+ PFAS signature types have been identified, an aerial deposition signature and a process water signature (Geosyntec, 2021a). The aerial deposition signature is defined as generally being dominated by the four compounds reported with the highest concentrations in offsite groundwater, which are PMPA[7], PEPA[8], PFO2HxA[9] and HFPO-DA, while the process water signature is dominated by PFMOAA.

Of the 4,755 private wells with sufficient PFAS detections to be assessed (Geosyntec, 2021) in Bladen, Cumberland and Robeson counties, 4,755 had an aerial deposition signature. These private wells are hydraulically upgradient and/or isolated from groundwater near facility operations and therefore, Table 3+ PFAS detected in these wells are interpreted to have originated from aerial deposition (Geosyntec, 2019b).

The 395 private and non-private wells sample data posted by NCDEQ with Table 3+ PFAS detections indicate a process water Table 3+ PFAS signature. PFMOAA is both the most commonly detected Table 3+ compound, found in 143 of 158 samples with Table 3+ PFAS detections. It is also the highest concentration Table 3+ PFAS in 134 of the 143 samples where PFMOAA was detected (Table 2). Permitted discharges from the Facility to the Cape Fear River between 1979 and 2017 contained PFAS process wastewater, suggesting that Cape Fear River water withdrawals and usage may potentially be responsible for these detections, as is explored in the other hypotheses, rather than aerial deposition.

3.2.6 Hypothesis #6: Groundwater Transport from Facility

Hypothesis 6 posits that Table 3+ PFAS present in groundwater at the facility have been transported to the counties via groundwater transport. This hypothesis is not retained based on the assessment of existing data.

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7 PMPA: perfluoromethoxypropyl carboxylic acid

8 PEPA: perfluoroethoxypropyl carboxylic acid

9 PFO2HxA: perfluoro(3,5 dioxahexanoic) acid

3.2.6.1 Assessment of Hypothesis

While multiple lines of evidence can be constructed to demonstrate that migration of Table 3+ PFAS through groundwater did not reach the counties, the simplest line of evidence is the direction of groundwater flow at the facility. The On and Offsite Assessment (Geosyntec, 2019b) and subsequent annual groundwater and mass loading model monitoring events have shown groundwater onsite migrates towards the regional discharge feature, the Cape Fear River. Therefore, this hypothesis is not retained.

4. BACKGROUND SAMPLING

Background samples will be collected to assess the ambient concentrations of Table 3+ PFAS in the counties. Three locations in each county will be selected for background groundwater and surface and subsurface soil sampling. Selected sampling locations will target areas unlikely to have been influenced by the proposed source/cause hypotheses presented in this Framework. Additionally, selected locations will avoid areas that likely utilized fill material to subsidize or replace native soils (ITRC, 2021). Background samples are not expected to have detectable concentrations of Table 3+ PFAS, but may have detectable concentrations of other PFAS analytes, especially those detected using Method 537M which do not originate from the Chemours Fayetteville Works facility.

5. SUMMARY, IMPLEMENTATION AND REPORTING

This framework outlines a path forward on how to meet the five soil and groundwater assessment requirements of the 2L rules. The assessment framework begins with a data gathering step followed by preparing and then implementing investigative sampling plans. Investigative sampling will be performed consistent with methodologies previously employed in characterization and assessment activities such as the on- and offsite assessment and the on-going mass loading model program (Geosyntec, 2019b, Geosyntec 2021b). The results from the investigative sampling and the parallel interim four counties sampling and drinking water program will then be combined and interpreted to prepare a soil and groundwater assessment report.

This framework describes the conceptual approach for assessing the hypotheses describing the potential source and cause of Table 3+ PFAS in soil and groundwater in the counties. Hypotheses that will be retained for evaluation are outlined in Table 6. Sampling plans for each of these hypotheses will be developed using information collected during the data gathering and compilation stage. Geosyntec has begun compiling some of this information from publicly available sources. Other information is presently in possession of other organizations such as NCDEQ, the counties, and various utilities. Geosyntec has sent letters to these organizations requesting this information and requesting a teleconference to discuss the data request.

Responsiveness of the parties to the data requests has varied, with Counties/utilities being able or willing to respond to different requests. Columbus County representatives have not responded to our attempts at correspondence. After two months from receipt of NCDEQ's March 28, 2022 letter (May 28, 2022), Chemours will consider data gathering complete and will then submit an investigation sampling plan to NCDEQ within 90 days (Friday August 26, 2022). Upon receipt of results and receipt of results available from private well sampling, Geosyntec will prepare a Soil and Groundwater Assessment Report to submit to NCDEQ.

Table 6 Retained Source and Cause Hypotheses to be Assessed

Hypothesis Description	Hypothesis is Retained (Yes or No)
Leaking potable water distribution pipes and sanitary sewers that convey water from the Cape Fear River	Yes
Direct application and injection to downstream areas by Cape Fear River water users	Yes
Aquifer recharge by the Cape Fear River	Yes
Land application of biosolids	Yes

6. REFERENCES

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U.S. Environmental Protection Agency (USEPA). 2022b. *Basic Information about Biosolids*. https://www.epa.gov/biosolids/basic-information-about-biosolids.

Appendix A
Public Records Requests

Geosyntec consultants

Geosyntec Consultants of NC, P.C.

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December 14, 2021

VIA EMAIL

Meagan Kascsak, Communications Director
Brunswick County Government Complex
30 Government Center Dr. NE
Bolivia, NC 28422
Meagan.kascsak@brunswickcountync.gov

Subject: The Chemours Company/Public Records Request

Dear Ms. Kascsak:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice").[1]

We are assisting Chemours in responding to DEQ's Notice. In order for Chemours to do so, Chemours requests further data and information from Brunswick County. Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, *et seq.*, we request that Brunswick County produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") described in the list below. This list has been organized on a priority basis, with highest priority requests listed first. To help facilitate this request, we also intend to set up a teleconference call with you and your chosen staff members to help clarify questions about this request.

List of Requested Information from Brunswick County

1. For each public water distribution system in the county[2] that has, since 1979, utilized Cape Fear River water as a source, the following records:
    a. Digital files in either CAD or GIS file format of the potable water distribution networks. Additional information, which if available would be greatly appreciated, includes the asset ages, construction material, diameter, and inverts;

[1] DEQ has posted the Notice on its website at https://deq.nc.gov/media/25279/download?attachment.
[2] The distribution systems in Brunswick County for which data and information are requested include but are not limited to the distribution systems listed in Table 1 at the end of this letter.

b. Digital files in either CAD or GIS file format of the sanitary sewer networks. Additional information, which if available would be greatly appreciated includes the asset ages, construction material, diameter, and inverts and water treatment plant locations;
c. As available, records of water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations);
d. As available, records, 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; and
e. As available, records of locations where surface water from the Cape Fear River was injected into subsurface aquifers.

2. Groundwater PFAS testing results from Brunswick County which are not posted on DEQ's website,[3] including:
    a. Identifying information for the wells included in the datasets;
    b. For each well, associated laboratory data and sampling information (including, field notes, water levels, water depths, and well coordinates);
    c. For each well, associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
    d. For each well, well service and operation history information; and
    e. A consolidated list or lists and/or GIS files containing well locations (eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

3. Records regarding the numbers, locations, registrations, usages, and well service and operation histories of public and private drinking water supply wells in Brunswick County.

4. As available, the list of persons or entities with registered water withdrawals and, for each registration, the quantities of water withdrawn and hydrogeological units from which the water was or is withdrawn.

[3] The results posted on DEQ's website are at https://deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water#well-testing-in-new-hanover-county.

***

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within your organization. Please tell us immediately if you are not authorized to accept this request on behalf of your organization, in which case we will redirect this request to other appropriate County personnel. We would like to arrange to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

Beau Hodge, P.G. **(NC)**
Senior Principal

Attachments: Table 1: Preliminary List of Water Distribution Systems Potentially Using Cape Fear River Surface Water Since 1979

Table 1: Preliminary List of Water Distribution Systems Potentially Using Cape Fear River Surface Water Since 1979

County	Distribution System Operator
Brunswick	Brunswick County
	Shallotte
	Ocean Isle Beach
	Bald Head Utilities
	Leland
	Navassa
	South Port
	Oak Island
	H2GO
	Holden Beach
	Northwest
	Village of Bald Head Island Public Utilities

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December 14, 2021

VIA EMAIL

Amanda Prince, County Attorney
Columbus County Administration Building
110 Courthouse Square
Whiteville, NC 28472
aprince@columbusco.org

Subject: The Chemours Company/Public Records Request

Dear Ms. Prince:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice").[1]

We are assisting Chemours in responding to DEQ's Notice. In order for Chemours to do so, Chemours requests further data and information from Columbus County. Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, *et seq.*, we request that Columbus County produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") described in the list below. This list has been organized on a priority basis, with highest priority requests listed first. To help facilitate this request, we also intend to set up a teleconference call with you and your chosen staff members to help clarify questions about this request.

List of Requested Information from Columbus County

1. For each public water distribution system in the county[2] that has, since 1979, utilized Cape Fear River water as a source, the following records:
    a. Digital files in either CAD or GIS file format of the potable water distribution networks. Additional information, which if available would be greatly

[1] DEQ has posted the Notice on its website at https://deq.nc.gov/media/25279/download?attachment.
[2] The distribution system in Columbus County for which data and information are requested include but are not limited to is that of Columbus County Public Utilities.

appreciated, includes the asset ages, construction material, diameter, and inverts;
b. Digital files in either CAD or GIS file format of the sanitary sewer networks. Additional information, which if available would be greatly appreciated includes the asset ages, construction material, diameter, and inverts and water treatment plant locations;
c. As available, records of water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations);
d. As available, records, 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; and
e. As available, records of locations where surface water from the Cape Fear River was injected into subsurface aquifers.

2. Groundwater PFAS testing results from Columbus County which are not posted on DEQ's website,[3] including:
   a. Identifying information for the wells included in the datasets;
   b. For each well, associated laboratory data and sampling information (including, field notes, water levels, water depths, and well coordinates);
   c. For each well, associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
   d. For each well, well service and operation history information; and
   e. A consolidated list or lists and/or GIS files containing well locations (eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

3. Records regarding the numbers, locations, registrations, usages, and well service and operation histories of public and private drinking water supply wells in Columbus County.

4. As available, the list of persons or entities with registered water withdrawals and, for each registration, the quantities of water withdrawn and hydrogeological units from which the water was or is withdrawn.

[3] The results posted on DEQ's website are at https://deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water#well-testing-in-new-hanover-county.

***

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within your organization. Please tell us immediately if you are not authorized to accept this request on behalf of your organization, in which case we will redirect this request to other appropriate County personnel. We would like to arrange to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

Beau Hodge, P.G. **(NC)**
Senior Principal

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December 14, 2021

VIA EMAIL

Jessica Loeper, Chief Communications Officer
New Hanover County Communications and Outreach
230 Government Center Drive, Suite 195
Wilmington, NC 28403
jloeper@nhcgov.com

Subject: The Chemours Company/Public Records Request

Dear Ms. Loeper:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice").[1]

We are assisting Chemours in responding to DEQ's Notice. In order for Chemours to do so, Chemours requests further data and information from New Hanover County. Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, et seq., we request that New Hanover County produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") described in the list below. This list has been organized on a priority basis, with highest priority requests listed first. To help facilitate this request, we also intend to set up a teleconference call with you and your chosen staff members to help clarify questions about this request.

List of Requested Information from New Hanover County

1. For each public water distribution system in the county[2] that has, since 1979, utilized Cape Fear River water as a source, the following records:
    a. Digital files in either CAD or GIS file format of the potable water distribution networks. Additional information, which if available, would be greatly appreciated, includes the asset ages, construction material, diameter, and inverts;

[1] DEQ has posted the Notice on its website at https://deq.nc.gov/media/25279/download?attachment.
[2] The distribution systems in New Hanover County for which data and information are requested include, but are not limited to, the distribution systems listed in Table 1 at the end of this letter.

b. Digital files in either CAD or GIS file format of the sanitary sewer networks. Additional information, which, if available, would be greatly appreciated includes the asset ages, construction material, diameter, and inverts and water treatment plant locations;
c. As available, records of water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations);
d. As available, records, 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; and
e. As available, records of locations where surface water from the Cape Fear River was injected into subsurface aquifers.

2. Groundwater PFAS testing results from New Hanover County not posted on DEQ's website,[3] including:
    a. Identifying information for the wells included in the datasets;
    b. For each well, associated laboratory data and sampling information (including, without limitation, field notes, water levels, water depths, and well coordinates);
    c. For each well, associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
    d. For each well, well service and operation history information; and
    e. A consolidated list or lists and/or GIS files containing well location information (such as eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

3. Records regarding the numbers, locations, registrations, usages, and well service and operation histories of public and private drinking water supply wells in New Hanover County.

4. As available, the list of persons or entities with registered water withdrawals and, for each registration, the quantities of water withdrawn and hydrogeological units from which the water was or is withdrawn.

***

[3] The results posted on DEQ's website are at https://deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water#well-testing-in-new-hanover-county.

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within your organization. Please tell us immediately if you are not authorized to accept this request on behalf of your organization, in which case, we will redirect this request to other appropriate County personnel. We would like to arrange to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

Beau Hodge, P.G. **(NC)**
Senior Principal

Attachments: Table 1: Preliminary List of Water Distribution Systems Potentially Using Cape Fear River Surface Water Since 1979

Table 1: Preliminary List of Water Distribution Systems Potentially Using Cape Fear River Surface Water Since 1979

County	Distribution System Operator
New Hanover	CFPUA Sweeney
	CFPUA Richardson
	CFPUA Monterey Heights
	Wrightsville Beach
	Carolina Beach
	Kure Beach
	Cape Master (South Wilmington Area)

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December 14, 2021

VIA EMAIL

Tara Cline, Administrator
Pender County Manager's Office
803 S. Walker St.
Burgaw, NC 28425
Tcline@pendercountync.gov

Subject: The Chemours Company/Public Records Request

Dear Ms. Cline:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice").[1]

We are assisting Chemours in responding to DEQ's Notice. In order for Chemours to do so, Chemours requests further data and information from Pender County. Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, *et seq.*, we request that Pender County produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") described in the list below. This list has been organized on a priority basis, with highest priority requests listed first. To help facilitate this request, we also intend to set up a teleconference call with you and your chosen staff members to help clarify questions about this request.

List of Requested Information from Pender County

1. For each public water distribution system in the county[2] that has, since 1979, utilized Cape Fear River water as a source, the following records:
    a. Digital files in either CAD or GIS file format of the potable water distribution networks. Additional information, which, if available, would be greatly appreciated, includes the asset ages, construction material, diameter, and inverts;

[1] DEQ has posted the Notice on its website at https://deq.nc.gov/media/25279/download?attachment.
[2] The distribution systems in Pender County for which data and information are requested include, but are not limited to, the distribution systems listed in Table 1 at the end of this letter.

b. Digital files in either CAD or GIS file format of the sanitary sewer networks. Additional information, which, if available, would be greatly appreciated includes the asset ages, construction material, diameter, and inverts and water treatment plant locations;
c. As available, records of water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations);
d. As available, records, 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; and
e. As available, records of locations where surface water from the Cape Fear River was injected into subsurface aquifers.

2. Groundwater PFAS testing results from Pender County not posted on DEQ's website,[3] including:
    a. Identifying information for the wells included in the datasets;
    b. For each well, associated laboratory data and sampling information (including, without limitation, field notes, water levels, water depths, and well coordinates);
    c. For each well, associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
    d. For each well, well service and operation history information; and
    e. A consolidated list or lists and/or GIS files containing well location information (such as eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

3. Records regarding the numbers, locations, registrations, usages, and well service and operation histories of public and private drinking water supply wells in Pender County.

4. As available, the list of persons or entities with registered water withdrawals and, for each registration, the quantities of water withdrawn and hydrogeological units from which the water was or is withdrawn.

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[3] The results posted on DEQ's website are at https://deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water#well-testing-in-new-hanover-county.

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within your organization. Please tell us immediately if you are not authorized to accept this request on behalf of your organization, in which case, we will redirect this request to other appropriate County personnel. We would like to arrange to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

Beau Hodge, P.G. **(NC)**
Senior Principal

Attachments: Table 1: Preliminary List of Water Distribution Systems Potentially Using Cape Fear River Surface Water Since 1979

Table 1: Preliminary List of Water Distribution Systems Potentially Using Cape Fear River Surface Water Since 1979

County	Distribution System Operator
Pender	Town of Burgaw
	Town of Topsail Beach
	Town of Surf City
	Moore's Creek Water District
	Central Pender Water District
	Maple Hill Water District
	Columbia-Union Water

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December 14, 2021

VIA EMAIL

Tim Holloman, Director
Lower Cape Fear Water and Sewer Authority
1107 New Point Boulevard, Suite 17
Leland, NC 28451
Director@lcfwasa.gov

Subject: The Chemours Company/Public Records Request

Dear Mr. Holloman:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice").[1]

We are assisting Chemours in responding to DEQ's Notice. In order for Chemours to do so, Chemours requires further data and information from Lower Cape Fear Water and Sewer Authority (LCFWASA). Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, *et seq.*, we request that Lower Cape Fear Water and Sewer Authority promptly produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") described in the list below. This list has been organized on a priority basis, with highest priority requests listed first. To help facilitate this request, we also intend to set up a teleconference call with you and your chosen staff members to help clarify questions about this request.

1. For LCFWASA's Cape Fear River water collection and distribution systems that collect water from the Cape Fear River and distribute water to customers, the following records:
    a. Digital files in either CAD or GIS file format of the collection and distribution networks. Additional information, which, if available, would be greatly appreciated, includes the asset ages, construction material, diameter, and inverts;

[1] DEQ has posted the Notice on its website at https://deq.nc.gov/media/25279/download?attachment.

b. As available, records of water collection and distribution system leaks since 1979 (including leak and repair locations); and
c. Locations where surface water from the Cape Fear River may have been injected into subsurface aquifers by LCFWASA.

2. Records, since 1979 as available, on a per year basis of customers to whom LCFWASA distributed Cape Fear River water, and the volume of water distributed to each customer, and as relevant, the proportion of Cape Fear River water versus groundwater or other water sources distributed to each customer; and

3. LCFWASA PFAS testing results not posted on DEQ's website,[2] including:
   a. Identifying information for the wells/sampling points included in the datasets;
   b. For each location, associated laboratory data and sampling information (including, without limitation, field notes, water levels, water depths, and well coordinates);
   c. For each location, associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
   d. For each location, all service and operation history information; and
   e. A consolidated list or lists and/or GIS files containing location information (such as eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

***

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within your organization. Please tell us immediately if you are not authorized to accept this request on behalf of your organization, in which case, we will redirect this request to other appropriate personnel. We would like to arrange to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

[2] The results posted on DEQ's website are at https://deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water#well-testing-in-new-hanover-county.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

Beau Hodge, P.G. **(NC)**
Senior Principal

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Raleigh, NC 27607
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January 20, 2022

VIA EMAIL

Carolina Beach
Kim Ward, Town Clerk
1121 N. Lake Park Blvd.
Carolina Beach, NC 28428
kim.ward@carolinabeach.org

Subject: The Chemours Company/Public Records Request

Dear Ms. Ward:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice").[1]

We are assisting Chemours in responding to DEQ's Notice. In order for Chemours to do so, Chemours requests further data and information from Carolina Beach. Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, *et seq.*, we request that Carolina Beach produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") described in the list below. This list has been organized on a priority basis, with highest priority requests listed first. To help facilitate this request, we also intend to set up a teleconference call with you and your chosen staff members to help clarify questions about this request.

List of Requested Information from Carolina Beach

1. For each public water distribution system owned or operated by Carolina Beach that has, since 1979, utilized Cape Fear River water as a source, the following records:
    a. Digital files in either CAD or GIS file format of the potable water distribution networks. Additional information, which, if available, would be greatly appreciated, includes the asset ages, construction material, diameter, and inverts;

[1] DEQ has posted the Notice on its website at https://deq.nc.gov/media/25279/download?attachment.

b. Digital files in either CAD or GIS file format of the sanitary sewer networks owned or operated by Carolina Beach. Additional information, which, if available, would be greatly appreciated includes the asset ages, construction material, diameter, and inverts and water treatment plant locations;
c. As available, records of water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations);
d. As available, records, 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; and
e. As available, records of locations where surface water from the Cape Fear River was injected into subsurface aquifers.

2. Groundwater, drinking water, and sanitary sewer PFAS testing results not posted on DEQ's website,[2] including:
    a. Identifying information for the sampling locations included in the datasets;
    b. For each well, associated laboratory data and sampling information (including, without limitation, field notes, water levels, water depths, and well coordinates);
    c. For each well, associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
    d. For each well, well service and operation history information; and
    e. A consolidated list or lists and/or GIS files containing well location information (such as eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

3. Records regarding the numbers, locations, registrations, usages, and well service and operation histories of drinking water supply wells owned or operated by Carolina Beach.

***

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within your organization. Please tell us immediately if you are not authorized to accept this request on behalf of your organization, in which case, we will redirect this request to other appropriate personnel. We would like to arrange

[2] The results posted on DEQ's website are at https://deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water#well-testing-in-new-hanover-county.

to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

Beau Hodge, P.G. **(NC)**
Senior Principal

Geosyntec consultants
Geosyntec Consultants of NC, P.C.

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Raleigh, NC 27607
PH 919.870.0576
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January 20, 2022

VIA EMAIL

Wrightsville Beach
Sylvia Holleman, Town Clerk
PO Box 626
Wrightsville Beach, NC 28480
sholleman@towb.org

Subject: The Chemours Company/Public Records Request

Dear Ms. Holleman:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice").[1]

We are assisting Chemours in responding to DEQ's Notice. In order for Chemours to do so, Chemours requests further data and information from Wrightsville Beach. Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, *et seq.*, we request that Wrightsville Beach produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") described in the list below. This list has been organized on a priority basis, with highest priority requests listed first. To help facilitate this request, we also intend to set up a teleconference call with you and your chosen staff members to help clarify questions about this request.

List of Requested Information from Wrightsville Beach

1. For each public water distribution system owned or operated by Wrightsville Beach that has, since 1979, utilized Cape Fear River water as a source, the following records:
    a. Digital files in either CAD or GIS file format of the potable water distribution networks. Additional information, which, if available, would be greatly appreciated, includes the asset ages, construction material, diameter, and inverts;

[1] DEQ has posted the Notice on its website at https://deq.nc.gov/media/25279/download?attachment.

b. Digital files in either CAD or GIS file format of the sanitary sewer networks owned or operated by Wrightsville Beach. Additional information, which, if available, would be greatly appreciated includes the asset ages, construction material, diameter, and inverts and water treatment plant locations;
c. As available, records of water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations);
d. As available, records, 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; and
e. As available, records of locations where surface water from the Cape Fear River was injected into subsurface aquifers.

2. Groundwater, drinking water, and sanitary sewer PFAS testing results not posted on DEQ's website,[2] including:
    a. Identifying information for the sampling locations included in the datasets;
    b. For each well, associated laboratory data and sampling information (including, without limitation, field notes, water levels, water depths, and well coordinates);
    c. For each well, associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
    d. For each well, well service and operation history information; and
    e. A consolidated list or lists and/or GIS files containing well location information (such as eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

3. Records regarding the numbers, locations, registrations, usages, and well service and operation histories of drinking water supply wells owned or operated by Wrightsville Beach.

***

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within your organization. Please tell us immediately if you are not authorized to accept this request on behalf of your organization, in which case, we will redirect this request to other appropriate personnel. We would like to arrange

[2] The results posted on DEQ's website are at https://deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water#well-testing-in-new-hanover-county.

to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

Beau Hodge, P.G. **(NC)**
Senior Principal

Geosyntec consultants
Geosyntec Consultants of NC, P.C.

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Raleigh, NC 27607
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www.geosyntec.com

January 20, 2022

VIA EMAIL

Vaughn Hagerty
Public Information Officer
Cape Fear Public Utility Authority
235 Government Center Drive
Wilmington, NC 28403

Subject: The Chemours Company/Public Records Request

Dear Mr. Hagerty:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice").[1]

We are assisting Chemours in responding to DEQ's Notice. In order for Chemours to do so, Chemours requests further data and information from CFPUA. Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, *et seq.*, we request that CFPUA produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") described in the list below. This list has been organized on a priority basis, with highest priority requests listed first. To help facilitate this request, we also intend to set up a teleconference call with you and your chosen staff members to help clarify questions about this request.

List of Requested Information from CFPUA

1. For each public water distribution system owned or operated by CFPUA that has, since 1979, utilized Cape Fear River water as a source, the following records:
    a. Digital files in either CAD or GIS file format of the potable water distribution networks. Additional information, which, if available, would be greatly appreciated, includes the asset ages, construction material, diameter, and inverts;

[1] DEQ has posted the Notice on its website at https://deq.nc.gov/media/25279/download?attachment.

b. Digital files in either CAD or GIS file format of the sanitary sewer networks owned or operated by CFPUA. Additional information, which, if available, would be greatly appreciated includes the asset ages, construction material, diameter, and inverts and water treatment plant locations;
c. As available, records of water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations);
d. As available, records, 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; and
e. As available, records of locations where surface water from the Cape Fear River was injected into subsurface aquifers.

2. Groundwater, drinking water, and sanitary sewer PFAS testing results not posted on DEQ's website,[2] including:
    a. Identifying information for the sampling locations included in the datasets;
    b. For each well, associated laboratory data and sampling information (including, without limitation, field notes, water levels, water depths, and well coordinates);
    c. For each well, associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
    d. For each well, well service and operation history information; and
    e. A consolidated list or lists and/or GIS files containing well location information (such as eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

3. Records regarding the numbers, locations, registrations, usages, and well service and operation histories of drinking water supply wells owned or operated by CFPUA.

***

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within your organization. Please tell us immediately if you are not authorized to accept this request on behalf of your organization, in which case, we will redirect this request to other appropriate personnel. We would like to arrange

[2] The results posted on DEQ's website are at https://deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water#well-testing-in-new-hanover-county.

to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

Beau Hodge, P.G. **(NC)**
Senior Principal

Geosyntec consultants
Geosyntec Consultants of NC, P.C.

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Raleigh, NC 27607
PH 919.870.0576
www.geosyntec.com

January 20, 2022

VIA EMAIL

Aqua of NC Inc.
C. Ruffin Poole
Water and Wastewater
900 The Cape Boulevard
Wilmington, NC 28412
CRPoole@AquaAmerica.com

Subject: The Chemours Company/Public Records Request

Dear Mr. Poole:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice").[1]

We are assisting Chemours in responding to DEQ's Notice. In order for Chemours to do so, Chemours requests further data and information from Aqua of NC, Inc. Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, *et seq.*, we request that Aqua of NC, Inc. produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") described in the list below. This list has been organized on a priority basis, with highest priority requests listed first. To help facilitate this request, we also intend to set up a teleconference call with you and your chosen staff members to help clarify questions about this request.

List of Requested Information from Aqua of NC, Inc.

1. For public water distribution systems operated or owned by Aqua of NC, Inc. that have, since 1979, utilized Cape Fear River water as a source, the following records:
    a. Digital files in either CAD or GIS file format of the potable water distribution networks. Additional information, which, if available, would be greatly appreciated, includes the asset ages, construction material, diameter, and inverts;

[1] DEQ has posted the Notice on its website at https://deq.nc.gov/media/25279/download?attachment.

b. Digital files in either CAD or GIS file format of the sanitary sewer networks owned or operated by Aqua of NC, Inc. Additional information, which, if available, would be greatly appreciated includes the asset ages, construction material, diameter, and inverts and water treatment plant locations;
c. As available, records of water distribution system leaks since 1979 (including known water mains with leaks, and leak and repair locations);
d. As available, records, 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; and
e. As available, records of locations where surface water from the Cape Fear River was injected into subsurface aquifers.

2. Groundwater, drinking water, and sanitary sewer PFAS testing results not posted on DEQ's website,[2] including:
    a. Identifying information for the sampling locations included in the datasets;
    b. For each well, associated laboratory data and sampling information (including, without limitation, field notes, water levels, water depths, and well coordinates);
    c. For each well, associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
    d. For each well, well service and operation history information; and
    e. A consolidated list or lists and/or GIS files containing well location information (such as eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

3. Records regarding the numbers, locations, registrations, usages, and well service and operation histories of drinking water supply wells operated or owned by Aqua of NC, Inc.

***

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within your organization. Please tell us immediately if you are not authorized to accept this request on behalf of your organization, in which case, we will redirect this request to other appropriate personnel. We would like to arrange

[2] The results posted on DEQ's website are at https://deq.nc.gov/news/key-issues/emerging-compounds/managing-emerging-compounds-water#well-testing-in-new-hanover-county.

to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

Beau Hodge, P.G. **(NC)**
Senior Principal

ROBINSON
BRADSHAW

November 17, 2021

SDeGeorge@robinsonbradshaw.com
704.377.8380 : Direct Phone
704.373.3980 : Direct Fax

VIA EMAIL

Laura Leonard
Public Information Officer
North Carolina Department of Environmental Quality
217 West Jones Street
Raleigh, NC 27603
Laura.leonard@ncdenr.gov

Re: The Chemours Company/Public Records Request

Dear Ms. Leonard:

On November 3, 2021, the North Carolina Department of Environmental Quality ("DEQ") sent a letter to our client, The Chemours Company, entitled "Notice Regarding Chemours' Obligations Under Consent Order and 15A NCAC 02L .0106 - Offsite Groundwater Assessment and Provision of Replacement Drinking Water Supplies" (hereafter referred to as the "Notice"). The Notice stated: "[DEQ] has determined that Chemours is responsible for contamination of groundwater monitoring wells and water supply wells in New Hanover County and potentially other downstream counties[1] affected by PFAS contamination in the Cape Fear River." The Notice further stated: "DEQ directs Chemours to submit, within 90 days of receipt of this Notice, a plan for DEQ review and approval to conduct a comprehensive assessment of the groundwater contamination in New Hanover County and other affected counties" and "DEQ directs Chemours to submit, within 90 days of receipt of this Notice, an updated Drinking Water Compliance Plan pursuant to paragraph 24 of the Consent Order [to] provide for sampling of drinking water wells in downstream counties to identify affected parties entitled to provision of replacement water supplies."

In order for Chemours to respond to DEQ's Notice, Chemours requires further data and information in the possession of DEQ. Accordingly, on behalf of Chemours, and in accordance with the North Carolina Public Records Law, N.C. Gen. Stat. §§ 132-1, *et seq.*, we request that DEQ promptly produce or make available for inspection and photocopying the "Public Records" (as defined in § 132-1, hereinafter "Public Records") set forth below:

1. All Public Records related to drafts and final versions of the Notice. The foregoing includes, but is not limited to:
   a. All communications concerning the Notice, whether such communications took place before or after the Notice was issued and whether such communications took place within DEQ or between DEQ and any other person.
   b. All materials, and all communications, regarding the statement in the Notice: "DEQ's investigation has revealed that groundwater contamination in New

[1] The Notice listed "Pender, Columbus, [and] Brunswick Counties" as the other downstream counties.

Hanover County has reached private drinking water supply wells." The foregoing includes, but is not limited to:

i. The identification of the referenced "private drinking water supply wells" in New Hanover County;
ii. For each well, all associated laboratory data and sampling information (including, without limitation, field notes, water levels, water depths, and well coordinates);
iii. For each well, all associated analytical laboratory reports and Electronic Data Deliverables ("EDDs");
iv. For each well, all well service and operation history information; and
v. A consolidated list or lists and/or GIS files containing all well locations (eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).

c. All materials, and all communications, regarding the PFAS testing results posted on DEQ's website of groundwater monitoring wells and public water supply wells in the downstream counties, including, but not limited to:
   i. Identifying information for the wells included in the datasets;
   ii. For each well, all associated laboratory data and sampling information (including, without limitation, field notes, water levels, water depths, and well coordinates);
   iii. For each well, all associated analytical laboratory reports and EDDs;
   iv. For each well, all well service and operation history information; and
   v. A consolidated list or lists and/or GIS files containing all well locations (eastings, northings), elevations, screen interval depths, and hydrogeological data (including, without limitation, start and end depth of each hydrogeological unit).
d. All records of surface water and groundwater withdrawal registrations in the downstream counties, including, without limitation, all records created pursuant to N.C. Gen. Stat. § 143-215.22H and/or 15A NCAC 02E .0301.
e. All records regarding the numbers, locations, registrations, usages, and well service and operation histories of private drinking water supply wells in the downstream counties.
f. All records regarding NPDES or other discharges permitted or known by DEQ downstream of Fayetteville Works into the Cape Fear River or any tributary of the Cape Fear River, including, without limitation, all analytical results and data regarding such discharges.
g. All materials, including all analytical results and data and all communications, regarding potential or actual impacts to the water quality of private drinking water supply wells in the downstream counties, including, without limitation, from PFAS compounds, any other compounds or contaminants, saltwater intrusion, and any industrial, commercial, municipal, or other source.

h. All materials, and all communications, regarding the presence and/or use of PFAS compounds in the downstream counties, such as, but not limited to, Aqueous Film Forming Foams ("AFFF") used by industrial users, airports, or fire departments during fire responses or training exercises.

***

We are directing this Public Records Request to you because we understand that you will coordinate a response from all appropriate representatives within DEQ. Please tell us immediately if you are not authorized to accept this request on behalf of DEQ, in which case we will redirect this request to other appropriate DEQ personnel. We would like to arrange to review these Public Records as soon as possible, and request that your response to this Public Records Request be expedited. We will pay for all associated reasonable costs.

Thank you for your attention to this matter, and we look forward to hearing from you as soon as possible.

Sincerely,

ROBINSON, BRADSHAW & HINSON, P.A.

R. Steven DeGeorge

RSD/mdv

cc: William F. Lane, DEQ
Francisco Benzoni, NC DOJ

Appendix B
PFAS Results in Groundwater from NCDEQ Sampling of Private Wells in New Hanover County (2020)

APPENDIX B
PFAS Results in Groundwater from NCDEQ
Sampling of Private Wells in New Hanover County (2020)

Sample Location	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well
Location ID	1	2	3	4	5	6	7	8	9	10	11
Sample Date	1/22/2020	1/23/2020	1/23/2020	1/22/2020	1/22/2020	1/23/2020	1/23/2020	1/22/2020	1/23/2020	1/22/2020	1/22/2020
Table 3+ PFAS (ng/L)											
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	**15**	**16**	ND	**2**	**1**	ND	ND	**4**	**11**	**7**	**35**
Perfluoro-2-methoxyacetic acid (PFMOAA)	**140**	**100**	ND	**18**	**13**	ND	ND	**25**	**51**	**37**	**140**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	**110**	**89**	ND	**14**	**10**	ND	ND	**22**	**41**	**32**	**140**
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	**36**	**23**	ND	**4**	**3**	ND	ND	**6**	**13**	**8**	**11**
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	**6**	**3**	ND	ND	ND	ND	ND	ND	**1**	**1**	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PMPA	**9**	**12**	ND	**1**	ND	ND	ND	**5**	**6**	**7**	**34**
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	ND	**3**	ND	ND	ND	ND	ND	ND	ND	ND	**9**
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**
Byproduct 4 (BP4 of R-PSDA)	--	--	--	--	--	--	--	--	--	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	--	--	--	--	--	--	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--	--	--	--	--	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	--	--	--	--	--	--	--	--
Hydro-EVE	--	--	--	--	--	--	--	--	--	--	--
R-EVE	--	--	--	--	--	--	--	--	--	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	--	--	--	--	--	--	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	--	--	--	--	--	--	--	--	--
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	**3**	ND	ND	ND	ND	ND	ND	ND	ND	**9**
Other PFAS (ng/L)											
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	--	--	--	--	--	--	--	--
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	**2**	**1**	ND	ND	ND	ND	ND	**1**	**1**	**2**	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**3**	**5**	ND	ND	ND	ND	ND	**2**	ND	**3**	**2**

APPENDIX B
PFAS Results in Groundwater from NCDEQ
Sampling of Private Wells in New Hanover County (2020)

Sample Location	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well	Private Well
Location ID	1	2	3	4	5	6	7	8	9	10	11
Sample Date	1/22/2020	1/23/2020	1/23/2020	1/22/2020	1/22/2020	1/23/2020	1/23/2020	1/22/2020	1/23/2020	1/22/2020	1/22/2020
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	**3**	**2**	ND	**1**	ND	ND	ND	**2**	**1**	**3**	**1**
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	**6**	**3**	ND	**1**	ND	ND	ND	**3**	**1**	**4**	ND
Perfluorohexanoic acid (PFHxA)	**4**	**4**	ND	**1**	ND	ND	ND	**4**	**2**	**5**	**1**
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND
Perfluorooctadecanoic acid (PFODA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	**8**	**1**	ND	**4**	**1**	**1**	ND	**5**	**4**	**9**	ND
Perfluorooctanoic acid (PFOA)	**4**	**3**	ND	**1**	**1**	ND	ND	**4**	**2**	**7**	**1**
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	**6**	**6**	ND	**1**	**1**	ND	ND	**4**	**2**	**5**	**4**
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds 17 Compounds (ng/L)	**320**	**250**	ND	**39**	**27**	ND	ND	**61**	**120**	**91**	**380**
Total Table 3+ Compounds 20 Compounds (ng/L)	**320**	**250**	ND	**39**	**27**	ND	ND	**61**	**120**	**91**	**380**
Total of Other PFAS (ng/L)	**36**	**26**	ND	**10**	**3**	**1**	ND	**24**	**14**	**38**	**9**
Total of all Compounds (ng/L)	**350**	**270**	ND	**48**	**30**	**1**	ND	**85**	**140**	**130**	**390**

Notes:
1. Data were provided by NCDEQ and includes Private wells.
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, and R-EVE.
4. Unique IDs were not given for private wells, however, data are differentiated by latitude/longitude.
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

Appendix C
PFAS Results in Groundwater from NCDEQ Sampling of Non-Private Wells in New Hanover County (2019-2021)

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Beacon Woods Well Source-5515 Bernhardt				Cameron Trace Well	EaglePoint_CC29L1				EaglePoint_CC29L2			EaglePoint_CC29L3			EaglePoint_CC29L4			
Location ID	1				2	3				4			5			6			
Sample Date	6/19/2019	7/13/2020	4/6/2021	10/5/2021	1/26/2021	7/2/2019	8/27/2019	7/7/2021	10/28/2021	7/2/2019	8/27/2019	7/7/2021	7/2/2019	8/27/2019	7/7/2021	7/2/2019	8/27/2019	7/7/2021	10/28/2021
Table 3+ PFAS (ng/L)																			
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	**12**	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	**73**	ND	ND	ND	ND	ND	ND	--	**1**	ND	ND	--	ND	**1**	--	ND	ND	--	--
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	**57**	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	**21**	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	**3**	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
PMPA	**8**	--	--	ND	--	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	**3**	--	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Byproduct 4 (BP4 of R-PSDA)	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydro-EVE	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R-EVE	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	**9**	ND	ND	ND	--	ND	--	--	--	ND	--	--	ND	--	--	ND	--	--
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other PFAS (ng/L)																			
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	--	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	--	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
FBSA	--	--	--	ND	--	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	**6**	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Beacon Woods Well Source-5515 Bernhardt				Cameron Trace Well	EaglePoint_CC29L1				EaglePoint_CC29L2			EaglePoint_CC29L3			EaglePoint_CC29L4			
Location ID	1				2	3				4			5			6			
Sample Date	6/19/2019	7/13/2020	4/6/2021	10/5/2021	1/26/2021	7/2/2019	8/27/2019	7/7/2021	10/28/2021	7/2/2019	8/27/2019	7/7/2021	7/2/2019	8/27/2019	7/7/2021	7/2/2019	8/27/2019	7/7/2021	10/28/2021
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	**6**	ND	ND	--	ND	ND	--	--
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	--	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	**1**	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**2**	ND	ND	ND	**1**	ND	ND	--	**3**	ND	ND	--	**1**	**1**	**2.9**	ND	ND	--	**1**
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	**2**	--	**6**	**10**	--	ND	ND	--	--
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluoroheptanoic acid (PFHpA)	**1**	ND	ND	ND	ND	ND	ND	--	**2**	ND	ND	--	ND	ND	--	ND	ND	--	**1**
Perfluorohexadecanoic acid (PFHxDA)	--	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	**1**	**1**	--	ND	ND	--	--
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	**1**	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluorohexanoic acid (PFHxA)	**2**	ND	ND	ND	ND	ND	ND	--	**4**	ND	ND	--	ND	ND	--	ND	ND	--	**1**
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	**2**	**2**	--	ND	ND	--	--
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluorooctadecanoic acid (PFODA)	--	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	**1**	ND	ND	ND	ND	ND	ND	--	--	ND	ND	**13**	ND	ND	--	ND	ND	--	--
Perfluorooctanoic acid (PFOA)	**2**	ND	ND	ND	ND	ND	ND	--	**1**	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	**1**	**1**	--	ND	ND	--	--
Perfluoropentanoic acid (PFPeA)	**3**	ND	ND	ND	ND	ND	ND	--	**4**	ND	ND	--	ND	ND	--	ND	ND	--	**1**
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	**3**	**2**	--	ND	ND	--	--
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	--	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--
Total Table 3+ Compounds (17 Compounds) (ng/L)	**180**	**9**	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	**180**	**9**	ND	ND	ND	ND	ND	--	**1**	ND	ND	--	ND	**1**	--	ND	ND	--	--
Total Other PFAS (ng/L)	**18**	ND	ND	ND	**1**	ND	ND	ND	**14**	ND	**2**	**19**	**13**	**17**	**3**	ND	ND	ND	**4**
Total of all Compounds (ng/L)	**190**	**9**	ND	ND	**1**	ND	ND	--	**15**	ND	**2**	**19**	**13**	**18**	**3**	ND	ND	--	**4**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring wells, public supply and emergency wells from the Sweeney or Richardson water treatment facilities.
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, and R-EVE.
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Foxcroft Well Source- 326 Kingston Rd.			Masonboro Forest Well Source- 401 Navaho			MyrtleGrove_EE30M1				MyrtleGrove_EE30M2			MyrtleGrove_EE30M3			NC0465010-ASR WELL		
Location ID	7			8			9				10			11			12		
Sample Date	6/10/2020	3/23/2021	10/5/2021	6/11/2020	4/6/2021	10/5/2021	7/2/2019	8/27/2019	7/7/2021	10/28/2021	7/2/2019	8/27/2019	7/9/2021	7/2/2019	8/27/2019	7/7/2021	1/23/2019	3/27/2019	10/28/2021
Table 3+ PFAS (ng/L)																			
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	**58**	**81**	--
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	**6**
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	ND	ND	**2**	**4**	**2**	**3**	--	**8**	ND	ND	--	ND	ND	--	**850**	--	**500**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	ND	ND	ND	**2**	--	--	ND	ND	--	ND	ND	--	**780**	--	**72**
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	**210**	--	**19**
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	**38**	--	**3**
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
PMPA	--	--	ND	--	--	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	**11**	--	--
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	ND	ND	--	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	**5**	--	--
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	**7**	--	--
Byproduct 4 (BP4 of R-PSDA)	--	ND	ND	--	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	ND	ND	--	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	ND	ND	--	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	ND	ND	--	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	ND	ND	--	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydro-EVE	--	ND	ND	--	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
R-EVE	--	ND	ND	--	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	ND	ND	--	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	ND	ND	--	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	ND	ND	--	--	--	--	--	ND	--	--	ND	--	--	--	--
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	--	--	--	--	--
Other PFAS (ng/L)																			
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
FBSA	--	--	ND	--	--	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND		ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Foxcroft Well Source- 326 Kingston Rd.			Masonboro Forest Well Source- 401 Navaho			MyrtleGrove_EE30M1				MyrtleGrove_EE30M2			MyrtleGrove_EE30M3			NC0465010-ASR WELL		
Location ID	7			8			9				10			11			12		
Sample Date	6/10/2020	3/23/2021	10/5/2021	6/11/2020	4/6/2021	10/5/2021	7/2/2019	8/27/2019	7/7/2021	10/28/2021	7/2/2019	8/27/2019	7/9/2021	7/2/2019	8/27/2019	7/7/2021	1/23/2019	3/27/2019	10/28/2021
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	ND	ND	--	ND	ND	--	ND	--	--	ND	ND	--	ND	ND	--	--	--	--
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	ND	ND	ND	ND	ND	ND	**7**	**9**	--	**11**	--	--	--	--	--	--	**1**	--	--
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	ND	ND	**12**	**19**	**5**	**8**	ND	ND	--	ND	ND	--	**2**	--	**1**
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	**1**	--	ND	ND	--	ND	--	--
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	**1**	--	--
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	**1**	**1**	--	--	ND	ND	--	ND	ND	--	ND	--	--
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	**10**	**10**	**5**	**7**	ND	ND	--	ND	ND	--	**3**	--	--
Perfluorohexadecanoic acid (PFHxDA)	--	ND	ND	--	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	ND		**23**	**23**	**8**	**9**	ND	ND	--	ND	ND	--	**1**	--	--
Perfluorohexanoic acid (PFHxA)	ND	ND	ND	ND	ND		**19**	**20**	**10**	**13**	ND	ND	--	ND	ND	--	**3**	--	--
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	**1**	**2**	--	**1**	ND	ND	--	ND	ND	--	**1**	--	--
Perfluorooctadecanoic acid (PFODA)	--	ND	ND	--	ND	ND	--	--	--	--	ND	ND	--	ND	ND	--	--	--	--
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	--	--	ND	--	--
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	**41**	**40**	**26**	**35**	ND	ND	--	ND	ND	--	**3**	--	**1**
Perfluorooctanoic acid (PFOA)	ND	ND	ND	ND	ND	ND	**33**	**38**	**18**	**25**	**1**	ND	**2**	**4**	**3**	--	**3**	--	--
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	**1**	**2**	--	**1**	**2**	**3**	--	**1**	**1**	--	ND	--	--
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	ND	**18**	**18**	**9**	**10**	ND	ND	--	ND	ND	--	**8**	--	**2**
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	--	--
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	--	--	--	--	ND	ND	--	ND	ND	--	--	--	--
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	ND	**2**	**4**	**2**	**5**	ND	**8**	ND	ND	ND	ND	ND	ND	**2,000**	**81**	**600**
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	ND	ND	**2**	**4**	**2**	**5**	--	**8**	ND	ND	--	ND	ND	--	**2,000**	**81**	**600**
Total Other PFAS (ng/L)	ND	ND	ND	ND	ND	**1**	**170**	**180**	**80**	**120**	**3**	**4**	**2**	**5**	**4**	ND	**24**	ND	**4**
Total of all Compounds (ng/L)	ND	ND	ND	ND	**2**	**4**	**170**	**180**	**81**	**130**	**3**	**4**	**2**	**5**	**4**	--	**2,000**	**81**	**600**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, :
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465010-W31 Queens Point Well #31 - 136 E			NC0465010-W40 Pirates Cove Well #40 - 401 Windward Dr		NC0465010-WBW BEACON WOODS				NC0465010-WBW Beacon Woods Well (DEQ)	NC0465010-WFO FOXCROFT WELL				NC0465010-WFO Foxcroft Well (DEQ)	NC0465010-WMF MASONBORO FOREST WELL #43			
Location ID	13			14		15				16	17				18	19			
Sample Date	10/1/2019	6/10/2020	4/6/2021	6/24/2020	4/6/2021	6/19/2019	7/31/2019	7/13/2020	4/6/2021	6/19/2019	6/19/2019	7/31/2019	6/10/2020	3/23/2021	6/19/2019	6/19/2019	7/31/2019	6/11/2020	4/6/2021
Table 3+ PFAS (ng/L)																			
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	**2**	ND	**2**	ND	ND	**12**	ND	ND	ND	**12**	ND	**3**	ND	ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	**2**	ND	**49**	ND	ND	**73**	ND	ND	ND	**73**	ND	**6**	ND	ND	ND	ND	ND	ND	**2**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	**16**	ND	**8**	ND	ND	**57**	ND	ND	ND	**57**	ND	**5**	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	**13**	ND	**3**	ND	ND	**21**	ND	ND	ND	**21**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	**3**	ND	ND	ND	ND	**3**	ND	ND	ND	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND
PMPA	ND	ND	ND	ND	ND	**8**	ND	**9**	ND	--	ND	**5**	ND	ND	--	ND	ND	ND	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	ND	ND	ND	ND	ND	**3**	ND	ND	ND	--	ND	**3**	ND	ND	--	ND	ND	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	**2**	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	ND	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND
Hydro-EVE	--	--	ND	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND
R-EVE	--	--	ND	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	ND	--	--	ND	ND	**8**	--	--	ND	ND	ND	--	--	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	--	--	--	--	--	--	--	--	--	**3**	--	--	--	--	ND	--	--	--	--
Other PFAS (ng/L)																			
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND
FBSA	ND	ND	ND	ND	ND	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**440**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	**6**	ND	ND	ND	**6**	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465010-W31 Queens Point Well #31 - 136 E			NC0465010-W40 Pirates Cove Well #40 - 401 Windward Dr		NC0465010-WBW BEACON WOODS				NC0465010-WBW Beacon Woods Well (DEQ)	NC0465010-WFO FOXCROFT WELL				NC0465010-WFO Foxcroft Well (DEQ)	NC0465010-WMF MASONBORO FOREST WELL #43			
Location ID	**13**			**14**		**15**				**16**	**17**				**18**	**19**			
Sample Date	**10/1/2019**	**6/10/2020**	**4/6/2021**	**6/24/2020**	**4/6/2021**	**6/19/2019**	**7/31/2019**	**7/13/2020**	**4/6/2021**	**6/19/2019**	**6/19/2019**	**7/31/2019**	**6/10/2020**	**3/23/2021**	**6/19/2019**	**6/19/2019**	**7/31/2019**	**6/11/2020**	**4/6/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	--	--	--	--	--	**1**	--	--	--	**1**	--	--	--	--	ND	--	--	--	--
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**1**	ND	ND	ND	ND	**2**	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	**1**	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND	**1**	ND	ND	--	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	ND	**1**	ND	ND	ND	**1**	--	ND	ND	ND	ND	--	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	**1**	ND	**1**	ND	ND	**2**	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	--	ND	ND	ND	ND	ND	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	**1**	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	**1**	ND	ND	ND	ND	**2**	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	**1**	ND	ND	ND	ND	**3**	ND	ND	ND	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	**3**	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	**36**	ND	**63**	ND	ND	**180**	ND	**9**	ND	**180**	ND	**23**	ND	ND	ND	ND	ND	ND	**2**
Total Table 3+ Compounds (20 Compounds) (ng/L)	**36**	ND	**65**	ND	ND	**180**	ND	**9**	ND	**180**	ND	**23**	ND	ND	ND	ND	ND	ND	**2**
Total Other PFAS (ng/L)	**4**	ND	**4**	ND	ND	**18**	ND	ND	ND	**460**	ND	**7**	ND	ND	ND	ND	ND	ND	ND
Total of all Compounds (ng/L)	**41**	ND	**69**	ND	ND	**190**	ND	**9**	ND	**630**	ND	**30**	ND	ND	ND	ND	ND	ND	**2**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465010-WMF Masonboro Forest Well (DEQ)	NC0465010-WSP SEA PINES WELL #44				NC0465010-WSP Sea Pines Well (DEQ)	NC0465010-WSS SEA SPRAY WELL #34				NC0465025-W05 WELL #5		NC0465112-W02 WELL #1			NC0465121-200 WELL #2	
Location ID	20	21				22	23				25		27			28	
Sample Date	6/19/2019	6/19/2019	7/31/2019	6/11/2020	4/6/2021	6/19/2019	3/27/2019	6/11/2020	4/6/2021	10/28/2021	5/31/2019	6/19/2019	5/31/2019	6/19/2019	8/1/2019	6/20/2019	8/1/2019
Table 3+ PFAS (ng/L)																	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	**1**	**10**	**11**	**11**	**1**	**9**	**10**	**8**	--	ND	ND	**2**	**2**	**2**	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	**8**	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	**11**	**64**	**89**	**570**	**11**	**64**	**88**	**340**	**260**	ND	ND	**12**	**10**	**8**	ND	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	**9**	**63**	**51**	**50**	**9**	**56**	**50**	**48**	**64**	ND	ND	**8**	**8**	**9**	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	**1**	**17**	**18**	**23**	**1**	**15**	**18**	**18**	**19**	ND	ND	**2**	**3**	**2**	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	**2**	**2**	**2**	ND	**2**	**3**	**3**	**2**	ND	ND	ND	**2**	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
PMPA	--	**2**	**9**	**11**	ND	--	**4**	**8**	ND	--	ND	ND	**1**	**1**	ND	ND	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	ND	**6**	ND	**5**	--	**3**	ND	**2**	--	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	--	--	**14**	--	--	--	**11**	--	--	--	--	--	--	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	--	ND	--	--	--	ND	--	--	--	--	--	--	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	--	ND	--	--	--	ND	--	--	--	--	--	--	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--	ND	--	--	--	ND	--	--	--	--	--	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	--	ND	--	--	--	ND	--	--	--	--	--	--	--	--
Hydro-EVE	--	--	--	--	**2**	--	--	--	**1**	--	--	--	--	--	--	--	--
R-EVE	--	--	--	--	ND	--	--	--	ND	--	--	--	--	--	--	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	--	ND	--	--	--	ND	--	--	--	--	--	--	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	--	--	--	--	**2**	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--
Other PFAS (ng/L)																	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	--	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	--	--	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	--	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	--	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	--	--	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	**110**	ND	ND	ND	ND	**60**	**3**	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	--	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465010-WMF Masonboro Forest Well (DEQ)	NC0465010-WSP SEA PINES WELL #44				NC0465010-WSP Sea Pines Well (DEQ)	NC0465010-WSS SEA SPRAY WELL #34				NC0465025-W05 WELL #5		NC0465112-W02 WELL #1			NC0465121-200 WELL #2	
Location ID	**20**	**21**				**22**	**23**				**25**		**27**			**28**	
Sample Date	**6/19/2019**	**6/19/2019**	**7/31/2019**	**6/11/2020**	**4/6/2021**	**6/19/2019**	**3/27/2019**	**6/11/2020**	**4/6/2021**	**10/28/2021**	**5/31/2019**	**6/19/2019**	**5/31/2019**	**6/19/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	--	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	--	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	ND	--	ND	ND	--	--	ND	ND	--	ND	ND	--	--	--	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	ND	--	**1**	**1**	**1**	ND	**2**	**3**	**3**	**4**	--	--	**19**	**22**	**22**	--	--
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	**2**	**2**	**2**	ND	**2**	**3**	**3**	**4**	ND	ND	**4**	**6**	**5**	**3**	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	**3**	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	**1**	**1**	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	**1**	**1**	**1**	ND	**2**	**2**	**2**	**3**	ND	ND	**3**	**4**	**3**	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	--	ND	ND	ND	ND	--	ND	ND	ND	--	ND	ND	ND	ND	ND	**2**	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	--	ND	ND	ND	ND	**3**	**3**	**3**	**4**	ND	ND	**5**	**6**	**5**	ND	ND
Perfluorohexanoic acid (PFHxA)	ND	ND	**1**	**2**	**2**	ND	**3**	**4**	**3**	**3**	ND	ND	**8**	**7**	**6**	**5**	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	**5**	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	**1**	**1**	**1**	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	ND	--	ND	ND	--	--	ND	ND	--	ND	ND	--	--	--	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	--	ND	ND	ND	ND	ND	ND	ND	--	--	--	ND	ND	ND	--	--
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	**5**	**9**	**8**	**8**	ND	ND	**22**	**29**	**20**	ND	ND
Perfluorooctanoic acid (PFOA)	ND	ND	**1**	**2**	**2**	ND	**4**	**5**	**5**	**6**	ND	ND	**11**	**12**	**9**	**12**	ND
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	**1**	**1**	**1**	**6**	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	**3**	**3**	**3**	ND	**3**	**4**	**3**	**4**	ND	ND	**7**	**8**	**7**	**1**	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	**5**	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	--	ND	--	--	--	--	--	--	--	--	ND	ND	--	--	--	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	**25**	**170**	**180**	**670**	**25**	**150**	**180**	**430**	**350**	ND	ND	**25**	**26**	**21**	ND	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	**24**	**170**	**180**	**680**	**24**	**150**	**180**	**430**	**350**	ND	ND	**25**	**26**	**21**	ND	ND
Total Other PFAS (ng/L)	**110**	ND	**9**	**10**	**10**	**60**	**27**	**32**	**29**	**36**	ND	ND	**81**	**97**	**80**	**41**	ND
Total of all Compounds (ng/L)	**110**	**24**	**180**	**190**	**690**	**84**	**180**	**210**	**460**	**380**	ND	ND	**110**	**120**	**100**	**41**	ND

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, :
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465137-W01 WELL #1						NC0465137-W02 WELL #2					NC0465137-W03 WELL #3					
Location ID	29						30					31					
Sample Date	4/29/2019	5/14/2019	10/1/2019	6/11/2020	10/6/2020	3/23/2021	4/29/2019	10/1/2019	6/11/2020	10/6/2020	4/6/2021	4/29/2019	5/14/2019	10/1/2019	6/11/2020	10/6/2020	4/6/2021
Table 3+ PFAS (ng/L)																	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	ND	ND	**10**	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3**	ND	**2**	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PMPA	ND	ND	ND	ND	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	--	ND	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	--	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	--	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	--	ND	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	--	ND	ND
Hydro-EVE	--	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	--	ND	ND
R-EVE	--	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	--	ND	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	--	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	--	--	ND	ND	ND	ND	--	ND	ND	ND	ND	--	--	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other PFAS (ng/L)																	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465137-W01 WELL #1						NC0465137-W02 WELL #2					NC0465137-W03 WELL #3					
Location ID	**29**						**30**					**31**					
Sample Date	**4/29/2019**	**5/14/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**3/23/2021**	**4/29/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**4/6/2021**	**4/29/2019**	**5/14/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**4/6/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**1**	**1**	**1**	ND	ND	ND	ND	ND	ND	ND	ND	**3**	**6**	**3**	**3**	**3**	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**2**	**1**	**1**	**1**	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4**	**7**	**4**	**5**	**4**	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	**1**	**1**	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	--	--	--	ND	ND	ND	--	--	ND	ND	ND	--	--	--	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	**1**	**1**	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	**1**	**1**	**1**	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**2**	**1**	**2**	**1**	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	**1**	**2**	**1**	**1**	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	ND	**5**	**2**	ND	ND	ND	ND	ND	ND	**4**	ND	**2**	**10**	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	ND	ND	**5**	**2**	ND	ND	ND	ND	ND	ND	**4**	ND	**2**	**10**	ND
Total Other PFAS (ng/L)	**3**	**5**	**6**	**1**	**3**	**1**	ND	ND	ND	ND	ND	**8**	**17**	**9**	**11**	**8**	ND
Total of all Compounds (ng/L)	**3**	**5**	**6**	**1**	**8**	**3**	ND	ND	ND	ND	ND	**8**	**21**	**9**	**12**	**18**	ND

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, :
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465137-W04 Well #4 - 6608 Chorley Rd				NC0465137-W05 Well #5 - 225 McQuillan Dr				NC0465137-W06 Well #6 - 124 Southwold Dr		NC0465137-W07 Well #7 - 5401 Myrtle Grove Rd		NC0465138-W02 WELL #2		NC0465165-W02 WELL #2		NC0465198-001 WELL #1		NC0465199-W2A WELL #6_SANDERS RD
Location ID	32				33				34		35		36		37		38		39
Sample Date	10/1/2019	6/11/2020	10/6/2020	4/6/2021	10/1/2019	6/11/2020	10/6/2020	4/6/2021	1/28/2020	10/6/2020	1/28/2020	10/6/2020	6/20/2019	8/1/2019	6/20/2019	8/1/2019	6/20/2019	8/1/2019	1/23/2020
Table 3+ PFAS (ng/L)																			
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5**	**7**	**2**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4**	**5**	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PMPA	ND	ND	ND	**3**	ND	ND	ND	ND	ND	ND	ND	**19**	ND	ND	ND	ND	ND	ND	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	ND	ND	--	--	ND	ND	--	ND	--	ND	--	--	--	--	--	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	--	--	ND	ND	--	ND	--	ND	--	--	--	--	--	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	--	--	ND	ND	--	ND	--	ND	--	--	--	--	--	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	ND	**1**	--	--	ND	ND	--	ND	--	ND	--	--	--	--	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	--	--	ND	ND	--	ND	--	ND	--	--	--	--	--	--	--
Hydro-EVE	--	--	ND	ND	--	--	ND	ND	--	ND	--	ND	--	--	--	--	--	--	--
R-EVE	--	--	ND	ND	--	--	ND	ND	--	ND	--	ND	--	--	--	--	--	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	--	--	ND	ND	--	ND	--	ND	--	--	--	--	--	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	**5**	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other PFAS (ng/L)																			
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465137-W04 Well #4 - 6608 Chorley Rd				NC0465137-W05 Well #5 - 225 McQuillan Dr				NC0465137-W06 Well #6 - 124 Southwold Dr		NC0465137-W07 Well #7 - 5401 Myrtle Grove Rd		NC0465138-W02 WELL #2		NC0465165-W02 WELL #2		NC0465198-001 WELL #1		NC0465199-W2A WELL #6_SANDERS RD
Location ID	**32**				**33**				**34**		**35**		**36**		**37**		**38**		**39**
Sample Date	**10/1/2019**	**6/11/2020**	**10/6/2020**	**4/6/2021**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**4/6/2021**	**1/28/2020**	**10/6/2020**	**1/28/2020**	**10/6/2020**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**1/23/2020**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4**	**5**	**2**	**2**	**1**	**1**	**2**
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	**2**	**2**	**1**	ND	**1**
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	**1**	**1**	**1**	**1**	**1**
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	**3**	**3**	**3**	**4**	**1**
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	**9**	ND	ND	ND	ND	ND	ND	ND	ND	**4**	**3**	**2**	**2**	**1**	**2**	**1**
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	--	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	--	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**16**	**15**	**12**	**11**	**2**	**1**	**4**
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**7**	**5**	**3**	**3**	**1**	ND	**2**
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4**	**4**	**2**	**3**	**1**	**2**	**1**
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	**12**	ND	ND	ND	ND	ND	ND	ND	**19**	ND	ND	ND	ND	**10**	**14**	**2**
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	ND	**12**	ND	ND	ND	ND	ND	ND	ND	**19**	ND	ND	ND	ND	**10**	**14**	**2**
Total Other PFAS (ng/L)	ND	ND	ND	**9**	ND	ND	ND	ND	ND	ND	ND	ND	**41**	**37**	**28**	**27**	**11**	**10**	**13**
Total of all Compounds (ng/L)	ND	ND	ND	**22**	ND	ND	ND	ND	ND	ND	ND	**19**	**41**	**37**	**28**	**27**	**21**	**24**	**15**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

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PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465232-APD WELL A - PEE DEE	NC0465232-BCH WELL B - CASTLE HAYNE	NC0465232-BPD WELL B - PEE DEE		NC0465232-CCH WELL C - CASTLE HAYNE	NC0465232-CPD WELL C - PEE DEE	NC0465232-FCH WELL F - CASTLE HAYNE	NC0465232-FPD WELL F - PEE DEE	NC0465232-GCH WELL G - CASTLE HAYNE	NC0465232-GPD WELL G - PEE DEE	NC0465232-HCH WELL H - CASTLE HAYNE	NC0465232-HPD WELL H - PEE DEE	NC0465232-ICH WELL I - CASTLE HAYNE	NC0465232-IPD WELL I - PEE DEE	NC0465232-JCH WELL J - CASTLE HAYNE	NC0465232-JPD WELL J - PEE DEE	NC0465232-KCH WELL K - CASTLE HAYNE	NC0465232-KPD WELL K - PEE DEE	NC0465232-LCH WELL L - CASTLE HAYNE	NC0465232-LPD WELL L - PEE DEE
Location ID	**40**	**41**	**42**		**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**
Sample Date	**5/9/2019**	**5/9/2019**	**5/9/2019**	**3/23/2021**	**5/9/2019**	**5/9/2019**	**7/16/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**
Table 3+ PFAS (ng/L)																				
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	**11**	ND	ND	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	ND	ND	**1**	ND	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	**7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PMPA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydro-EVE	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R-EVE	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other PFAS (ng/L)																				
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC046523 2-APD WELL A - PEE DEE	NC04652 32-BCH WELL B - CASTLE HAYNE	NC0465232-BPD WELL B - PEE DEE		NC046523 2-CCH WELL C - CASTLE HAYNE	NC04652 32-CPD WELL C - PEE DEE	NC0465232 -FCH WELL F - CASTLE HAYNE	NC046523 2-FPD WELL F - PEE DEE	NC046523 2-GCH WELL G - CASTLE HAYNE	NC04652 32-GPD WELL G - PEE DEE	NC0465232 -HCH WELL H - CASTLE HAYNE	NC046523 2-HPD WELL H - PEE DEE	NC046523 2-ICH WELL I - CASTLE HAYNE	NC04652 32-IPD WELL I - PEE DEE	NC046523 2-JCH WELL J - CASTLE HAYNE	NC046523 2-JPD WELL J - PEE DEE	NC046523 2-KCH WELL K - CASTLE HAYNE	NC04652 32-KPD WELL K - PEE DEE	NC046523 2-LCH WELL L - CASTLE HAYNE	NC046523 2-LPD WELL L - PEE DEE
Location ID	**40**	**41**	**42**		**43**	**44**	**45**	**46**	**47**	**48**	**49**	**50**	**51**	**52**	**53**	**54**	**55**	**56**	**57**	**58**
Sample Date	**5/9/2019**	**5/9/2019**	**5/9/2019**	**3/23/2021**	**5/9/2019**	**5/9/2019**	**7/16/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**	**5/9/2019**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	ND	**3**	ND	**2**	ND	ND	ND	ND	ND	**4**	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	**1**	ND	**1**	ND	ND	ND	ND	ND	**1**	ND	ND	**1**	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	**1**	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	**1**	ND	ND	ND	ND	**2**	ND	**1**	ND	ND	ND	ND	ND	**3**	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	**1**	ND	ND	ND	ND	**5**	ND	**3**	ND	ND	ND	ND	ND	**5**	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	**1**	ND	ND	ND	ND	**4**	ND	**2**	ND	ND	ND	ND	ND	**4**	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	**2**	ND	ND	ND	**1**	**2**	ND	**1**	ND	ND	ND	ND	ND	**3**	ND	ND	**1**	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanononanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	**22**	ND	ND	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	ND	ND	**1**	ND	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	**22**	ND	ND	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	ND	ND	**1**	ND	ND
Total Other PFAS (ng/L)	**6**	ND	**2**	ND	**1**	**19**	ND	**10**	ND	ND	ND	ND	ND	**23**	ND	ND	**2**	ND	ND	ND
Total of all Compounds (ng/L)	**27**	ND	**2**	**3**	**1**	**19**	ND	**10**	ND	ND	ND	ND	ND	**24**	**2**	ND	**2**	**1**	ND	ND

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,

CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465232-PPD WELL P - PEE DEE		NC0465232-QPD WELL Q - PEE DEE	NC0465232-W04 WELL #4 WHITE RD			NC0465232-W15 WELL #15 ELKMONT					NC0465232-W19 Well #19 - 110 Marsh Oaks Dr	NC0465232-W20 WELL #20 OLD MARSH OAKS#2				NC0465232-W28 WELL #28 M	
Location ID	59		60	61			62					63	64				65	
Sample Date	5/9/2019	10/28/2021	5/9/2019	5/6/2019	6/10/2020	4/5/2021	5/6/2019	7/7/2020	4/5/2021	5/19/2021	10/4/2021	10/1/2019	5/6/2019	1/23/2020	6/10/2020	4/5/2021	3/27/2019	5/9/2019
Table 3+ PFAS (ng/L)																		
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	**12**	--	ND	ND	ND	ND	**1**	**1**	**1**	ND	**1**	ND	ND	ND	ND	ND	**4**	**8**
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	**4**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	**110**	**150**	**2**	**1**	ND	**13**	**3**	**4**	**24**	**13**	**53**	ND	ND	ND	ND	**1**	**26**	**52**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	**86**	**38**	ND	**2**	ND	**2**	**2**	**2**	**4**	**2**	**2**	ND	ND	ND	ND	ND	**21**	**41**
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	**19**	**11**	ND	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	**5**	**10**
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PMPA	**11**	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3**	**8**
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	**2**	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5**
Nafion Byproduct 1 (PS Acid)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	--	--	--	ND	--	--	**1**	ND	ND	--	--	--	--	ND	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	--	--	ND	--	--	ND	ND	ND	--	--	--	--	ND	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	--	--	ND	--	--	ND	ND	ND	--	--	--	--	ND	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--	--	ND	--	--	ND	--	--	--	--	--	--	ND	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	--	--	ND	--	--	ND	ND	ND	--	--	--	--	ND	--	--
Hydro-EVE	--	--	--	--	--	ND	--	--	ND	ND	ND	--	--	--	--	ND	--	--
R-EVE	--	--	--	--	--	ND	--	--	ND	ND	ND	--	--	--	--	ND	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	--	--	ND	--	--	ND	ND	ND	--	--	--	--	ND	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	--	--	--	ND	ND	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	--	--	--	--	ND	ND	--	ND	ND	ND	ND	ND	--	ND	ND	ND	--	--
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	--	--	--	--	--	--	--	--	--	ND	ND	--	--	--	--	--	--	--
Other PFAS (ng/L)																		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465232-PPD WELL P - PEE DEE		NC0465232-QPD WELL Q - PEE DEE	NC0465232-W04 WELL #4 WHITE RD			NC0465232-W15 WELL #15 ELKMONT					NC0465232-W19 Well #19 - 110 Marsh Oaks Dr	NC0465232-W20 WELL #20 OLD MARSH OAKS#2				NC0465232-W28 WELL #28 M	
Location ID	59		60	61			62					63	64				65	
Sample Date	5/9/2019	10/28/2021	5/9/2019	5/6/2019	6/10/2020	4/5/2021	5/6/2019	7/7/2020	4/5/2021	5/19/2021	10/4/2021	10/1/2019	5/6/2019	1/23/2020	6/10/2020	4/5/2021	3/27/2019	5/9/2019
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	**3**	**2**	--	--	--	--	--	--	--	**1**	**1**	--	--	--	--	--	--	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**7**	**3**	**1**	ND	ND	**1**	**2**	**2**	**2**	**1**	**1**	**3**	ND	ND	ND	ND	ND	**1**
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	--	ND	**1**	ND	**1**	ND	ND	ND	ND	ND	**4**	**6**	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	**3**	**2**	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	**2**
Perfluorohexadecanoic acid (PFHxDA)	ND	--	ND	**1**	ND	**1**	**1**	**1**	**1**	ND	ND	**2**	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	**5**	**2**	ND	ND	ND	ND	ND	ND	ND	**3**	**3**	ND	ND	ND	ND	ND	ND	**2**
Perfluorohexanoic acid (PFHxA)	**6**	**2**	**4**	**1**	ND	**2**	**4**	**4**	**4**	**1**	**1**	**2**	ND	ND	ND	ND	**1**	**3**
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	--	**2**	**1**	ND	**1**	**2**	**2**	**2**	ND	ND	**3**	ND	ND	ND	ND	**1**	ND
Perfluorononanoic acid (PFNA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	--	--	--	ND	ND	--	ND	ND	ND	ND	--	--	ND	ND	ND	--	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	**9**	**4**	ND	ND	ND	ND	ND	ND	ND	**2**	**1**	ND	ND	ND	ND	ND	ND	**3**
Perfluorooctanoic acid (PFOA)	**6**	**3**	**2**	**1**	ND	**1**	**2**	**2**	**2**	ND	**1**	**3**	ND	**8**	ND	ND	**1**	**4**
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	--	**1**	**1**	ND	**2**	**1**	**2**	**1**	ND		**3**	ND	ND	ND	ND	**2**	ND
Perfluoropentanoic acid (PFPeA)	**7**	**3**	ND	ND	ND	ND	**1**	**1**	**1**	**1**	**1**	ND	ND	ND	ND	ND	ND	**4**
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	--	**2**	**1**	ND	**1**	**2**	**2**	**2**	ND	ND	**3**	ND	ND	ND	ND	**2**	ND
Perfluorotridecanoic acid (PFTrDA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--
Total Table 3+ Compounds (17 Compounds) (ng/L)	**240**	**200**	**2**	**3**	ND	**15**	**6**	**7**	**30**	**15**	**56**	ND	ND	ND	ND	**1**	**59**	**120**
Total Table 3+ Compounds (20 Compounds) (ng/L)	**240**	**200**	**2**	**3**	ND	**15**	**6**	**7**	**32**	**16**	**56**	ND	ND	ND	ND	**1**	**59**	**120**
Total Other PFAS (ng/L)	**46**	**21**	**11**	**8**	ND	**9**	**15**	**14**	**15**	**8**	**11**	**22**	**6**	**8**	ND	ND	**6**	**18**
Total of all Compounds (ng/L)	**280**	**230**	**13**	**10**	ND	**24**	**21**	**22**	**46**	**24**	**67**	**22**	**6**	**8**	ND	**1**	**65**	**140**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, :

CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465232-W29 WELL# 29 N		NC0465232-W30 WELL# 30 O	NC0465232-WCT Cameron Trace Well	NC0465459-W01 WELL #1	NC0465465-W02 WELL #2		NC0465508-S02 WELL#2		NC0465520-0G2 WELL 0G2	NC0465532-002 WELL #2			NC0465544-W01 WELL #1	NC0465576-S02 WELL #2	NC0465617-W01 WELL #1			NC0465625-W01 WELL #1
Location ID	66		67	68	69	70		71		72	73			75	76	77			78
Sample Date	3/27/2019	5/9/2019	5/9/2019	1/26/2021	1/23/2020	6/19/2019	7/31/2019	6/19/2019	7/31/2019	1/23/2020	5/31/2019	6/20/2019	8/1/2019	1/23/2020	1/23/2020	5/31/2019	6/19/2019	7/31/2019	1/23/2020
Table 3+ PFAS (ng/L)																			
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	**2**	**2**	ND	ND	ND	ND	ND	ND	ND	**3**	**15**	**19**	**18**	ND	ND	**3**	**4**	**3**	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	**13**	**12**	**6**	ND	ND	ND	**1**	ND	ND	**30**	**96**	**96**	**100**	ND	ND	**15**	**22**	**13**	**1**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	**12**	**7**	**4**	ND	ND	ND	ND	ND	ND	**27**	**74**	**87**	**92**	**1**	ND	**15**	**20**	**12**	**2**
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	**4**	**2**	**1**	ND	ND	ND	ND	ND	ND	**4**	**24**	**32**	**26**	ND	ND	**3**	**4**	**3**	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4**	**5**	**3**	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PMPA	**2**	ND	ND	ND	ND	ND	ND	ND	ND	**6**	**7**	**6**	**8**	ND	ND	**2**	**2**	**2**	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**5**	**5**	**4**	ND	ND	ND	ND	**1**	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydro-EVE	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R-EVE	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	--	--	--	ND	ND	--	--	--	--	--	--	--	--	--	ND	--	--	--	--
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other PFAS (ng/L)																			
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465232-W29 WELL# 29 N		NC0465232-W30 WELL# 30 O	NC0465232-WCT Cameron Trace Well	NC0465459-W01 WELL #1	NC0465465-W02 WELL #2		NC0465508-S02 WELL#2		NC0465520-0G2 WELL 0G2	NC0465532-002 WELL #2			NC0465544-W01 WELL #1	NC0465576-S02 WELL #2	NC0465617-W01 WELL #1			NC0465625-W01 WELL #1
Location ID	66		67	68	69	70		71		72	73			75	76	77			78
Sample Date	3/27/2019	5/9/2019	5/9/2019	1/26/2021	1/23/2020	6/19/2019	7/31/2019	6/19/2019	7/31/2019	1/23/2020	5/31/2019	6/20/2019	8/1/2019	1/23/2020	1/23/2020	5/31/2019	6/19/2019	7/31/2019	1/23/2020
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	ND	ND	ND	--	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	--	--	--	--	--	--	--	--	--	**1**	**6**	**7**	**7**	**10**	--	--	**1**	--	**5**
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3**	**4**	**4**	**5**	**15**	ND	**1**	**1**	**1**	**2**
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	**6**	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	**1**	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	**1**
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**4**	**5**	**4**	**5**	ND	ND	**1**	ND	**1**
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	**1**	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**6**	**7**	**7**	**8**	ND	ND	**6**	ND	**61**
Perfluorohexanoic acid (PFHxA)	**1**	**1**	**2**	ND	ND	ND	ND	ND	ND	**2**	**7**	**8**	**7**	**16**	ND	**6**	**2**	**5**	**37**
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	**1**	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	ND	**1**	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	**1**	**1**	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	ND	ND	ND	--	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	--	--	--	ND	ND	--	--	--	--	ND	ND	ND	ND	ND	ND	--	ND	--	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**6**	**12**	**14**	**13**	**61**	ND	ND	**12**	ND	**23**
Perfluorooctanoic acid (PFOA)	**1**	**1**	**1**	ND	**1**	ND	ND	**2**	ND	**1**	**10**	**11**	**11**	**17**	ND	**10**	**4**	**8**	**19**
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	**1**	**1**	**2**	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	**2**	ND	**4**	**1**	**3**	**4**
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**7**	**9**	**8**	**21**	ND	**1**	**2**	**1**	**5**
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	**1**	**1**	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	ND	**1**	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	--	--	--	--	ND	ND	--	ND	--
Total Table 3+ Compounds (17 Compounds) (ng/L)	**33**	**23**	**11**	ND	ND	ND	**1**	ND	ND	**73**	**220**	**250**	**250**	**1**	ND	**38**	**52**	**35**	**3**
Total Table 3+ Compounds (20 Compounds) (ng/L)	**33**	**23**	**11**	ND	ND	ND	**1**	ND	ND	**74**	**220**	**250**	**250**	**1**	ND	**39**	**52**	**34**	**3**
Total Other PFAS (ng/L)	**3**	**10**	**7**	**1**	**1**	ND	ND	**2**	ND	**16**	**56**	**66**	**63**	**160**	ND	**28**	**30**	**21**	**160**
Total of all Compounds (ng/L)	**36**	**33**	**17**	**1**	**1**	ND	**1**	**2**	ND	**90**	**280**	**320**	**310**	**160**	ND	**66**	**82**	**55**	**160**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465635-W01 WELL #1		NC0465644-W01 WELL #1		NC7010071-W01 WELL #1		NC7065011-W01 WELL #1			NC7065012-S02 WELL #2		NC7065016-S01 WELL #1		NC7065022-S01 WELL#1		NC7065035-W01 WELL #1		NC706504 3-W01 WELL #1
Location ID	**79**		**80**		**81**		**83**			**84**		**85**		**86**		**87**		**88**
Sample Date	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**1/23/2020**	**5/31/2019**	**6/19/2019**	**7/31/2019**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**1/23/2020**
Table 3+ PFAS (ng/L)																		
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	ND	ND	**1**	**3**	**11**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	**3**	ND	ND	ND	**9**	**19**	**63**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	ND	ND	**9**	**19**	**63**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	ND	ND	**3**	**5**	**14**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	**2**	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PMPA	ND	ND	ND	ND	ND	ND	ND	ND	**4**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hydro-EVE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
R-EVE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	--	--	--	--	--	ND	--	--	--	--	--	--	--	--	--	--	--	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other PFAS (ng/L)																		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NC0465635-W01 WELL #1		NC0465644-W01 WELL #1		NC7010071-W01 WELL #1		NC7065011-W01 WELL #1			NC7065012-S02 WELL #2		NC7065016-S01 WELL #1		NC7065022-S01 WELL#1		NC7065035-W01 WELL #1		NC7065043-W01 WELL #1
Location ID	**79**		**80**		**81**		**83**			**84**		**85**		**86**		**87**		**88**
Sample Date	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**1/23/2020**	**5/31/2019**	**6/19/2019**	**7/31/2019**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**6/20/2019**	**8/1/2019**	**1/23/2020**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	--	--	--	--	--	--	--	--	**1**	--	--	--	--	--	--	--	--	--
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	**1**	**1**	ND	ND	ND	ND	**6**	**2**	**1**	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	**4**	ND	ND	**1**	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND	**1**
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	**1**	**1**	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	**1**	**1**	**1**	**1**	ND	ND	**1**	**2**	**3**	**2**	**1**	ND	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	**2**	**1**	ND	ND	**1**	**2**	ND	**1**	ND	**1**	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	--	--	--	--	--	ND	--	--	ND	--	--	--	--	--	--	--	--	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	**6**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	ND	**1**	**3**	**2**	ND	ND	**1**	**3**	**4**	**5**	**2**	**1**	**1**	**1**	**1**	ND	ND	**46**
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	**2**	**2**	ND	ND	**1**	**2**	ND	**1**	**1**	**1**	**1**	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND	ND	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	**2**	**1**	ND	ND	**1**	**2**	ND	**1**	ND	ND	**1**	**1**	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	**3**	ND	ND	ND	**22**	**48**	**160**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	**3**	ND	ND	ND	**22**	**48**	**160**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Other PFAS (ng/L)	**1**	**2**	**12**	**12**	ND	ND	**6**	**13**	**30**	**10**	**4**	**3**	**2**	**2**	**1**	ND	ND	**47**
Total of all Compounds (ng/L)	**1**	**2**	**15**	**12**	ND	ND	**27**	**61**	**190**	**10**	**4**	**3**	**2**	**2**	**1**	ND	ND	**46**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, :
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NewHanoverCorrectionalInstitute_CC31U1				NorthernRegionalPark_CC30E1			NorthernRegionalPark_CC30E2			NorthernRegionalPark_CC30E3			Pirates Cove Well Source-401 Windward Dr.			Presidio_EE30P1		
Location ID	**89**				**90**			**91**			**92**			**93**			**94**		
Sample Date	**7/2/2019**	**8/27/2019**	**7/7/2021**	**10/28/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**	**6/24/2020**	**4/6/2021**	**10/5/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**
Table 3+ PFAS (ng/L)																			
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	**360**	**350**	**230**	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	**250**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	**2,800**	**2,900**	--	**13,000**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	**2**	ND	ND	--
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	**2,800**	**2,900**	--	**2,800**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	**810**	**740**	--	**650**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	**110**	**140**	--	**130**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	--	**18**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
PMPA	**71**	**73**	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--	--	ND	ND	ND	--
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	**42**	**77**	--	--	ND	ND	--	ND	ND	--	**4**	ND	--	--	ND	ND	ND	ND	--
Nafion Byproduct 1 (PS Acid)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Nafion Byproduct 2 (Hydro-PS Acid)	**20**	**21**	--	**26**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Byproduct 4 (BP4 of R-PSDA)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	--	--	--
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	--	--	--
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	--	--	--
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	--	--	--
Hydro-EVE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	--	--	--
R-EVE	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	--	--	--
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	--	--	--
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--	ND	ND	ND	ND	--
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	--	--	--
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	--	--	--	--	--	ND	--	--	ND	--	--	ND	--	ND	ND	ND	--	ND	--
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	--	--	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	--	--	--
Other PFAS (ng/L)																			
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
FBSA	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--	--	ND	ND	ND	--
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	NewHanoverCorrectionalInstitute_CC31U1				NorthernRegionalPark_CC30E1			NorthernRegionalPark_CC30E2			NorthernRegionalPark_CC30E3			Pirates Cove Well Source-401 Windward Dr.			Presidio_EE30P1		
Location ID	**89**				**90**			**91**			**92**			**93**			**94**		
Sample Date	**7/2/2019**	**8/27/2019**	**7/7/2021**	**10/28/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**	**6/24/2020**	**4/6/2021**	**10/5/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--	ND	ND	ND	ND	--
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	**6**	**6**	**5**	**6**	--	--	--	--	--	--	--	--	--	ND	ND	ND	--	--	--
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**16**	**18**	**11**	**19**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorodecanoic acid (PFDA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorododecanoic acid (PFDoA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	**1**	**1**	--	**1**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluoroheptanoic acid (PFHpA)	**14**	**17**	**11**	**13**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--	ND	ND	ND	ND	--
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	**8**	**8**	**5**	**7**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorohexanoic acid (PFHxA)	**17**	**16**	**13**	**19**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorononanoic acid (PFNA)	**4**	**4**	**3**	**4**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorooctadecanoic acid (PFODA)	--	--	--	--	ND	ND	--	ND	ND	--	ND	ND	--	--	ND	ND	ND	ND	--
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	--	--	--	--	--	--	--	--	--	--	--	ND	ND	ND	--	--	--
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	**36**	**40**	**24**	**31**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorooctanoic acid (PFOA)	**22**	**24**	**16**	**22**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	**1**	**2**	--	**2**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	**1**	**1**	--
Perfluoropentanoic acid (PFPeA)	**59**	**58**	**41**	**47**	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluorotridecanoic acid (PFTrDA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	--	--	--	--	ND	ND	--	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	--
Total Table 3+ Compounds (17 Compounds) (ng/L)	**7,000**	**7,200**	**230**	**17,000**	ND	ND	ND	ND	ND	ND	**4**	ND	ND	ND	ND	**2**	ND	ND	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	**7,100**	**7,200**	**230**	**17,000**	ND	ND	--	ND	ND	--	**4**	ND	--	ND	ND	**2**	ND	ND	--
Total Other PFAS (ng/L)	**180**	**190**	**130**	**170**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	ND
Total of all Compounds (ng/L)	**7,300**	**7,400**	**360**	**17,000**	ND	ND	--	ND	ND	--	**4**	ND	--	ND	ND	**2**	**1**	**1**	--

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Presidio_EE30P2			Presidio_EE30P3			Queens Point Well Source - 136 E. Bedford Rd.				RWTP Combined Permeate	RWTP Train 101 PEE DEE	RWTP Train 102 PEE DEE	RWTP Train CASTLE HAYNE	Sea Pines Well Source-4906 Waltmore Rd		
Location ID	**95**			**96**			**97**				**98**	**99**	**100**	**101**	**102**		
Sample Date	**7/2/2019**	**8/27/2019**	**7/7/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**	**10/1/2019**	**6/10/2020**	**4/6/2021**	**10/5/2021**	**5/19/2021**	**5/19/2021**	**5/19/2021**	**5/19/2021**	**6/11/2020**	**4/6/2021**	**10/5/2021**
Table 3+ PFAS (ng/L)																	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	--	ND	ND	--	**2**	ND	**2**	**2**	ND	ND	ND	ND	**11**	**11**	**11**
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	--	ND	ND	--	**2**	ND	**49**	**140**	ND	ND	ND	ND	**89**	**570**	**660**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	--	ND	ND	--	**16**	ND	**8**	**8**	ND	ND	ND	ND	**51**	**50**	**46**
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	--	ND	ND	--	**13**	ND	**3**	**5**	ND	ND	ND	ND	**18**	**23**	**19**
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	--	ND	ND	--	**3**	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	ND	ND	--	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
PMPA	ND	ND	--	ND	ND	--	--	--	--	ND	--	--	--	--	--	--	**12**
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	ND	ND	--	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	--	**5**	**5**
Nafion Byproduct 1 (PS Acid)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	--	--	--	--	--	--	**2**	ND	ND	ND	ND	ND	--	**14**	**14**
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	--	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	--	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--	--	--	--	--	--	ND	--	--	--	--	--	--	**9**
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	--	ND	ND
Hydro-EVE	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	--	ND	ND
R-EVE	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	--	**2**	**2**
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	--	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	ND	ND	--	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	--	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	--	ND	--	--	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	**11**	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)																	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	ND	ND	--	ND	ND	--	--	--	--	ND	--	--	--	--	--	--	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	--	ND	ND	--	ND	ND	ND		ND	ND	ND	ND	ND	ND	
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	**3**	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Presidio_EE30P2			Presidio_EE30P3			Queens Point Well Source - 136 E. Bedford Rd.				RWTP Combined Permeate	RWTP Train 101 PEE DEE	RWTP Train 102 PEE DEE	RWTP Train CASTLE HAYNE	Sea Pines Well Source-4906 Waltmore Rd		
Location ID	**95**			**96**			**97**				**98**	**99**	**100**	**101**	**102**		
Sample Date	**7/2/2019**	**8/27/2019**	**7/7/2021**	**7/2/2019**	**8/27/2019**	**7/7/2021**	**10/1/2019**	**6/10/2020**	**4/6/2021**	**10/5/2021**	**5/19/2021**	**5/19/2021**	**5/19/2021**	**5/19/2021**	**6/11/2020**	**4/6/2021**	**10/5/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	ND	ND	--	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	--	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	--	--	--	--	--	--	**1**	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	**1**
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**2**	**1**	--	ND	ND	--	ND	ND	**1**	ND	ND	ND	ND	ND	**2**	**2**	**2**
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	**2**	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	--	ND	ND	--	ND	ND	ND		ND	ND	ND	ND	**1**	**1**	**1**
Perfluorohexadecanoic acid (PFHxDA)	ND	**4**	--	ND	ND	--	ND	--	ND	ND	ND	ND	ND	ND	--	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	--	ND	ND	--	**1**	ND	**1**	**1**	ND	ND	ND	ND	ND	ND	**1**
Perfluorohexanoic acid (PFHxA)	**1**	**1**	--	ND	ND	--	ND	ND	**1**	**1**	ND	ND	ND	ND	**2**	**2**	**2**
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	**1**	**3**	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	**1**	**2**	--	ND	ND	--	--	--	ND	ND	ND	ND	ND	ND	--	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	--	--	--	--	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	**14**	ND	ND	--	**1**	ND	ND	**1**	ND	ND	ND	ND	ND	ND	
Perfluorooctanoic acid (PFOA)	**23**	**35**	**3**	ND	ND	--	ND	ND	**1**	**1**	ND	ND	ND	ND	**2**	**2**	**1**
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	**2**	**10**	--	ND	ND	--	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	--	ND	ND	--	ND	ND	**1**	ND	ND	ND	ND	ND	**3**	**3**	**3**
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	**2**	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	--	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	--	ND	ND	--	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	ND	ND	ND	**36**	ND	**63**	**150**	ND	ND	ND	ND	**180**	**670**	**770**
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	--	ND	ND	--	**36**	ND	**65**	**160**	ND	ND	ND	ND	**180**	**680**	**790**
Total Other PFAS (ng/L)	**30**	**62**	**17**	ND	ND	ND	**4**	ND	**4**	**4**	ND	ND	ND	ND	**10**	**10**	**10**
Total of all Compounds (ng/L)	**30**	**63**	**17**	ND	ND	--	**41**	ND	**69**	**160**	ND	ND	ND	ND	**190**	**690**	**800**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Sea Spray Well Source-915 Sea Spray Dr					Well #1 - 7353 Quail Woods Rd.	Well #1 Source-402 Cathay Rd								Well #15 Source-7520 Elkmont Ct.				
Location ID	**103**					**104**	**105**								**108**				
Sample Date	**3/27/2019**	**6/11/2020**	**4/6/2021**	**4/28/2021**	**10/5/2021**	**8/31/2021**	**4/29/2019**	**5/14/2019**	**5/14/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**3/23/2021**	**10/7/2021**	**5/6/2019**	**7/7/2020**	**4/5/2021**	**5/19/2021**	**10/4/2021**
Table 3+ PFAS (ng/L)																			
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	**9**	**10**	**8**	**8**	**7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	**1**	ND	**1**
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	**64**	**88**	**340**	**450**	**520**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3**	**4**	**24**	**13**	**53**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	**56**	**50**	**48**	**47**	**42**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	**4**	**2**	**2**
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	**15**	**18**	**18**	**18**	**14**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	**2**	**3**	**3**	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	ND	ND	ND	ND	ND	--	--	--	--	ND	ND	ND	ND	--	ND	ND	ND	ND
PMPA	--	--	--	--	**9**	ND	--	--	--	--	--	--	--	ND	--	--	--	--	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	--	**2**	**2**	**2**	ND	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	**11**	**12**	**14**	ND	--	--	--	--	--	ND	ND	ND	--	--	**1**	ND	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	ND	ND	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	ND	ND	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--	**7**	ND	--	--	--	--	--	--	--	ND	--	--	--	--	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	ND	ND	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	ND
Hydro-EVE	--	--	ND	ND	ND	ND	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	ND
R-EVE	--	--	**1**	ND	ND	ND	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	ND	ND	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	ND	ND	ND	ND	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	**4**	**8**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**5**	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)																			
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	--	ND	ND	--	--	--	--	--	--	--	ND	--	--	--	--	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	**3**	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Sea Spray Well Source-915 Sea Spray Dr					Well #1 - 7353 Quail Woods Rd.	Well #1 Source-402 Cathay Rd								Well #15 Source-7520 Elkmont Ct.				
Location ID	**103**					**104**	**105**								**108**				
Sample Date	**3/27/2019**	**6/11/2020**	**4/6/2021**	**4/28/2021**	**10/5/2021**	**8/31/2021**	**4/29/2019**	**5/14/2019**	**5/14/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**3/23/2021**	**10/7/2021**	**5/6/2019**	**7/7/2020**	**4/5/2021**	**5/19/2021**	**10/4/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	ND	ND	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	**2**	**3**	**3**	**3**	**3**	ND	**1**	**1**	ND	**1**	ND	ND	ND	ND	**2**	**2**	**2**	**1**	**1**
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**2**	**3**	**3**	**3**	**3**	ND	ND	ND	ND	**1**	ND	ND	ND	**1**	ND	ND	ND	**1**	**1**
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	**2**	**2**	**2**	**2**	**2**	ND	ND	ND	ND	ND	ND	ND	ND		**1**	**1**	**1**	ND	**1**
Perfluorohexadecanoic acid (PFHxDA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	**3**	**3**	**3**	**3**	**3**		ND	ND	ND	ND	ND	ND	ND		**4**	**4**	**4**	**3**	**3**
Perfluorohexanoic acid (PFHxA)	**3**	**4**	**3**	**3**	**3**	ND	ND	**1**	ND	**1**	ND	**1**	ND	**1**	**2**	**2**	**2**	**1**	**1**
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	--	ND	ND	ND	**2**	--	--	--	--	--	ND	ND	ND	--	ND	ND	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	**5**	**9**	**8**	**7**	**6**	**1**	**1**	**1**	ND	**2**	ND	ND	ND		**2**	**2**	**2**	**2**	**1**
Perfluorooctanoic acid (PFOA)	**4**	**5**	**5**	**5**	**4**		**1**	**1**	ND	**1**	ND	**1**	ND		**1**	**2**	**1**	ND	**1**
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	**1**	ND	
Perfluoropentanoic acid (PFPeA)	**3**	**4**	**3**	**4**	**3**	ND	**1**	**1**	**1**	**1**	**1**	**1**	ND	**1**	**2**	**2**	**2**	**1**	**1**
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	**150**	**180**	**430**	**530**	**610**	ND	ND	ND	ND	ND	ND	**5**	**2**	ND	**6**	**7**	**30**	**15**	**56**
Total Table 3+ Compounds (20 Compounds) (ng/L)	**150**	**180**	**430**	**540**	**620**	ND	ND	ND	ND	ND	ND	**5**	**2**	ND	**5**	**7**	**32**	**16**	**56**
Total Other PFAS (ng/L)	**27**	**32**	**29**	**30**	**27**	**3**	**3**	**4**	**1**	**6**	**1**	**3**	**1**	**5**	**15**	**14**	**15**	**8**	**11**
Total of all Compounds (ng/L)	**180**	**210**	**460**	**570**	**650**	**3**	**3**	**4**	**1**	**6**	**1**	**8**	**3**	**5**	**20**	**22**	**46**	**24**	**67**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well #19 Source-110 Marsh Oaks Dr.				Well #2 - 7200 Murrayville Rd.	Well #2 Source-543 Cathay Rd.						Well #20 Source- 208 Bayfield Dr.			
Location ID	109				110	111						112			
Sample Date	10/1/2019	7/7/2020	4/5/2021	10/4/2021	8/31/2021	4/29/2019	10/1/2019	6/11/2020	10/6/2020	4/6/2021	10/7/2021	5/6/2019	6/10/2020	4/5/2021	10/4/2021
Table 3+ PFAS (ng/L)															
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	**2**	**6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**15**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	ND	ND	ND	ND	--	--	ND	ND	ND	ND	--	ND	ND	ND
PMPA	--	--	--	ND	ND	--	--	--	--	--	ND	--	--	--	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	ND	ND	--	--	--	--	--	ND	--	--	--	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
Hydro-EVE	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
R-EVE	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)															
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	ND	ND	--	--	--	--	--	ND	--	--	--	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well #19 Source-110 Marsh Oaks Dr.				Well #2 - 7200 Murrayville Rd.	Well #2 Source-543 Cathay Rd.						Well #20 Source- 208 Bayfield Dr.			
Location ID	**109**				**110**	**111**						**112**			
Sample Date	**10/1/2019**	**7/7/2020**	**4/5/2021**	**10/4/2021**	**8/31/2021**	**4/29/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**4/6/2021**	**10/7/2021**	**5/6/2019**	**6/10/2020**	**4/5/2021**	**10/4/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	**3**	**2**	**1**	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**4**	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	**6**	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	**2**	**1**	**1**	**1**		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	**2**	**1**	**1**	**1**		ND	ND	ND	ND	ND		ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	**3**	**2**	**1**	**2**	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	ND	ND	ND	ND	--	--	--	ND	ND	ND	--	--	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	**3**	**3**	**2**	**2**		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	**3**	**2**	**2**	**2**		ND	ND	ND	ND	ND		ND	ND	ND	
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	**3**	**2**	**1**	**2**	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	**2**	**6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**15**
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	**2**	**6**	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**15**
Total Other PFAS (ng/L)	**22**	**13**	**9**	**14**	**1**	ND	ND	ND	ND	ND	**1**	**6**	ND	ND	
Total of all Compounds (ng/L)	**22**	**13**	**11**	**19**	**1**	ND	ND	ND	ND	ND	**1**	**6**	ND	**1**	**15**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well #3 Source-655 Halyburton Memorial								Well #4 Source - 2119 White Rd				Well #4 Source-6608 Chorley Rd.					
Location ID	114								117				119					
Sample Date	4/29/2019	5/14/2019	5/14/2019	10/1/2019	6/11/2020	10/6/2020	4/6/2021	10/7/2021	5/6/2019	6/10/2020	4/5/2021	10/4/2021	4/29/2019	10/1/2019	6/11/2020	10/6/2020	4/6/2021	10/7/2021
Table 3+ PFAS (ng/L)																		
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	**2**	ND	ND	ND	**10**	**1**	**11**	**1**	ND	**13**	**30**	ND	ND	ND	ND	ND	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	**1**	**1**	ND	**2**	ND	ND	ND	**2**	ND	**2**	**3**	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	--	--	--	ND	ND	ND	ND	--	ND	ND	ND	--	--	ND	ND	ND	ND
PMPA	--	--	--	--	--	--	--	ND	--	--	--	ND	--	--	--	--	--	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--	--	--	--	ND	--	--	--	ND	--	--	--	--	--	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	--	--	--	ND	**1**	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Hydro-EVE	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
R-EVE	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	ND	ND	**3**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)																		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	--	--	--	--	ND	--	--	--	ND	--	--	--	--	--	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well #3 Source-655 Halyburton Memorial								Well #4 Source - 2119 White Rd				Well #4 Source-6608 Chorley Rd.					
Location ID	114								117				119					
Sample Date	**4/29/2019**	**5/14/2019**	**5/14/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**4/6/2021**	**10/7/2021**	**5/6/2019**	**6/10/2020**	**4/5/2021**	**10/4/2021**	**4/29/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**4/6/2021**	**10/7/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	--	--	--	ND	**5**	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	**3**	**3**	**3**	**3**	**3**	**3**	ND	**3**	ND	ND	**1**	**1**	ND	ND	ND	ND	ND	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	**1**	**1**	**1**	**1**	**1**	**1**	ND	**1**	**1**	ND	**1**	**1**	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND		**1**	ND	**1**	**1**	ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND	ND	--	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	**4**	**4**	**3**	**4**	**5**	**4**	ND	**4**	**1**	ND	**2**	**2**	ND	ND	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	ND	ND	ND	ND	ND	ND	**9**		**1**	ND	**1**	**1**	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	--	--	--	--	ND	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	**1**	**1**	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	ND	**2**	**1**	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	**1**	**1**	**1**	**1**	**2**	**1**	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND		**1**	ND	**1**	**1**	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	**3**	**1**	ND	**2**	**10**	**7**	**11**	**3**	ND	**15**	**33**	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	**3**	**1**	ND	**2**	**10**	**7**	**11**	**3**	ND	**15**	**33**	ND	ND	ND	ND	ND	ND
Total Other PFAS (ng/L)	**8**	**10**	**7**	**9**	**11**	**8**	**14**	**10**	**8**	ND	**9**	**8**	ND	ND	ND	ND	ND	
Total of all Compounds (ng/L)	**8**	**13**	**9**	**9**	**12**	**18**	**21**	**21**	**10**	ND	**24**	**40**	ND	ND	ND	ND	ND	

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well #5 Source-1202 Shenandoah St.				Well 28-M Pee Dee Source					Well 29-N Pee Dee Source					Well 30-O Pee Dee Source			
Location ID	120				121					124					127			
Sample Date	11/19/2019	6/17/2020	4/5/2021	10/4/2021	3/27/2019	5/9/2019	5/9/2019	5/19/2021	10/4/2021	3/27/2019	5/9/2019	5/9/2019	5/12/2021	10/4/2021	5/9/2019	5/9/2019	5/12/2021	10/4/2021
Table 3+ PFAS (ng/L)																		
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	**4**	**5**	**4**	**5**	**6**	**2**	ND	**2**	**3**	**5**	ND	ND	**1**	**1**
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	ND	ND	**26**	**26**	**25**	**140**	**390**	**13**	ND	**12**	**46**	**280**	**6**	ND	**38**	**57**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	**21**	**20**	**21**	**21**	**20**	**12**	ND	**7**	**12**	**17**	**4**	ND	**6**	**4**
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	**5**	**5**	**4**	**10**	**7**	**4**	ND	**2**	**5**	**5**	**1**	ND	**2**	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	ND	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
PMPA	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND	--	--	--	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	--	ND	ND	--	--	--	**1**	ND	--	--	--	ND	ND	--	--	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	ND	ND	--	--	--	**7**	ND	--	--	--	**4**	ND	--	--	ND	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	ND	--	--	--	--	**4**	--	--	--	--	**3**	--	--	--	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
Hydro-EVE	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
R-EVE	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	**3**	**5**	**3**	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	ND	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)																		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	ND	--	--	--	--	ND	--	--	--	--	ND	--	--	--	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well #5 Source-1202 Shenandoah St.				Well 28-M Pee Dee Source					Well 29-N Pee Dee Source					Well 30-O Pee Dee Source			
Location ID	120				121					124					127			
Sample Date	**11/19/2019**	**6/17/2020**	**4/5/2021**	**10/4/2021**	**3/27/2019**	**5/9/2019**	**5/9/2019**	**5/19/2021**	**10/4/2021**	**3/27/2019**	**5/9/2019**	**5/9/2019**	**5/12/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/12/2021**	**10/4/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	**6**	**2**	ND	ND	ND	**2**	**1**
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	**1**	**1**	**1**	**1**	ND	ND	ND	**1**	**1**	ND	ND	**1**	**1**
Perfluorohexadecanoic acid (PFHxDA)	ND	--	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	ND	**1**	**1**	**1**	**2**	ND	**2**	**2**
Perfluorohexanoic acid (PFHxA)	**1**	ND	ND	ND	**1**	**2**	**1**	**2**	**1**	ND	ND	**1**	**1**	**1**	**1**	ND	**1**	**1**
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	**1**	**2**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	ND	**1**	**1**	**1**	**1**	ND	**1**	**1**
Perfluorooctanoic acid (PFOA)	**1**	ND	ND	ND	**2**	**2**	**2**	**2**	**2**	**1**	ND	**1**	**1**	**1**	**2**	ND	**1**	**1**
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	**2**	**2**	**2**	**2**	**2**	**1**	ND	**1**	**1**	ND	**1**	ND	**1**	**1**
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	ND	**59**	**66**	**56**	**180**	**430**	**33**	ND	**23**	**68**	**310**	**11**	ND	**46**	**62**
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	ND	ND	**59**	**66**	**57**	**180**	**430**	**33**	ND	**23**	**71**	**310**	**11**	ND	**46**	**62**
Total Other PFAS (ng/L)	**4**	**3**	**2**	**2**	**6**	**9**	**9**	**10**	**7**	**3**	ND	**10**	**7**	**5**	**7**	ND	**10**	**7**
Total of all Compounds (ng/L)	**4**	**3**	**2**	**2**	**65**	**75**	**66**	**190**	**430**	**36**	ND	**33**	**78**	**320**	**17**	ND	**56**	**69**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, a

CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well A-Pee Dee Source				Well B-Castle Hayne Source				Well B-Pee Dee Source					Well C-Castle Hayne Source			
Location ID	130				133				136					139			
Sample Date	5/9/2019	5/9/2019	5/11/2021	10/4/2021	5/9/2019	5/9/2019	5/12/2021	10/4/2021	5/9/2019	5/9/2019	3/23/2021	5/12/2021	10/4/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021
Table 3+ PFAS (ng/L)																	
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	**11**	**8**	**16**	ND	ND	ND	**4**	ND	ND	**3**	ND	**4**	ND	ND	**2**	**11**
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	**7**	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
PMPA	--	--	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Hydro-EVE	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
R-EVE	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)																	
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	ND	--	--	--	ND	--	--	--	--	ND	--	--	--	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well A-Pee Dee Source				Well B-Castle Hayne Source				Well B-Pee Dee Source					Well C-Castle Hayne Source			
Location ID	130				133				136					139			
Sample Date	5/9/2019	5/9/2019	5/11/2021	10/4/2021	5/9/2019	5/9/2019	5/12/2021	10/4/2021	5/9/2019	5/9/2019	3/23/2021	5/12/2021	10/4/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	ND	ND	**1**	**1**	ND	ND	**1**	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	**1**		ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	**1**	ND	**2**	**1**	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	**1**	ND	**2**	**1**	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	**1**	ND	**2**	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	ND	**1**	**1**	**1**	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	**1**	**1**	**2**	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	**22**	**10**	**16**	ND	ND	ND	**4**	ND	ND	**3**	ND	**4**	ND	ND	**2**	**11**
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	**22**	**10**	**16**	ND	ND	ND	**4**	ND	ND	**3**	ND	**4**	ND	ND	**2**	**11**
Total Other PFAS (ng/L)	**4**	**2**	**11**	**3**	ND	ND	**2**	**2**	ND	**2**	ND	ND	ND	ND	**1**	**1**	
Total of all Compounds (ng/L)	**4**	**23**	**21**	**19**	ND	ND	**2**	**6**	ND	**2**	**3**	ND	**4**	ND	**1**	**3**	**11**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, :

CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well C-Pee Dee Source				Well F-Castle Hayne		Well F-Pee Dee Source				Well G-Castle Hayne Source				Well G-Pee Dee Source			
Location ID	142				145		147				150				153			
Sample Date	5/9/2019	5/9/2019	5/11/2021	10/4/2021	7/16/2019	5/11/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021
Table 3+ PFAS (ng/L)																		
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	ND	**4**	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
PMPA	--	--	--	ND	--	--	--	--	--	ND	--	--	--	ND	--	--	--	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	ND	--	--	--	--	--	ND	--	--	--	ND	--	--	--	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
Hydro-EVE	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
R-EVE	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)																		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	ND	--	--	--	--	--	ND	--	--	--	ND	--	--	--	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well C-Pee Dee Source				Well F-Castle Hayne		Well F-Pee Dee Source				Well G-Castle Hayne Source				Well G-Pee Dee Source			
Location ID	142				145		147				150				153			
Sample Date	5/9/2019	5/9/2019	5/11/2021	10/4/2021	7/16/2019	5/11/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	**2**	**1**	**1**	**2**	ND	ND	**1**	**1**	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	**1**	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	**1**	**1**	**1**	**1**	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	**1**	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	**1**	**1**	**1**	**1**	ND	ND	**1**	**1**	ND		ND	ND	ND	ND	ND	ND	ND	
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	--	ND	ND	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	**3**	**2**	**2**	**2**	ND	ND	**1**	**2**	**2**	**1**	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	**2**	**2**	**1**	**1**	ND	ND	**1**	**1**	**1**	**1**	ND	ND	ND	ND	ND	ND	ND	
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	**1**	**1**	**1**	ND	ND	ND	**1**	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	**4**	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	ND	**4**	ND	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND
Total Other PFAS (ng/L)	**10**	**9**	**9**	**7**	ND	ND	**5**	**5**	**4**	**2**	ND	ND	ND	ND	ND	ND	ND	**1**
Total of all Compounds (ng/L)	**10**	**9**	**9**	**11**	ND	ND	**5**	**5**	**4**	**3**	ND	ND	ND	ND	ND	ND	ND	**1**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well H-Castle Hayne Source				Well H-Pee Dee Source			Well I-Castle Hayne Source				Well I-Pee Dee Source				Well J-Castle Hayne Source		
Location ID	156				159			162				165				168		
Sample Date	5/9/2019	5/9/2019	5/11/2021	10/4/2021	5/9/2019	5/9/2019	10/4/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021	5/9/2019	5/9/2019	5/11/2021	10/4/2021	5/9/2019	5/9/2019	5/11/2021
Table 3+ PFAS (ng/L)																		
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	**2**	ND	**5**	ND	**2**	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
PMPA	--	--	--	ND	--	--	ND	--	--	--	ND	--	--	--	ND	--	--	--
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	ND	--	--	ND	--	--	--	ND	--	--	--	ND	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
Hydro-EVE	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
R-EVE	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)																		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	ND	--	--	ND	--	--	--	ND	--	--	--	ND	--	--	--
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well H-Castle Hayne Source				Well H-Pee Dee Source			Well I-Castle Hayne Source				Well I-Pee Dee Source				Well J-Castle Hayne Source		
Location ID	**156**				**159**			**162**				**165**				**168**		
Sample Date	**5/9/2019**	**5/9/2019**	**5/11/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/11/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/11/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/11/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**2**	**2**	**2**	ND	ND	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	**1**	**1**	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	**1**	ND	**1**	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**1**	**1**	**1**	ND	ND	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	--	ND	ND	--	--	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**3**	**3**	**2**	ND	ND	ND
Perfluorooctanoic acid (PFOA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**3**	**2**	**2**	**2**	ND	ND	ND
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**2**	**1**	**1**	ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	**2**	ND	**6**	ND	**2**	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	**1**	ND	**2**	ND	**6**	ND	**2**	ND
Total Other PFAS (ng/L)	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	**11**	**12**	**9**	**8**	ND	ND	ND
Total of all Compounds (ng/L)	ND	ND	ND		ND	ND	ND	ND	ND	ND	**1**	**11**	**13**	**9**	**13**	ND	**2**	ND

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA, :
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well J-Pee Dee Source				Well K-Castle Hayne Source					Well K-Pee Dee Source					Well L-Castle Hayne Source			
Location ID	**171**				**174**					**177**					**180**			
Sample Date	**5/9/2019**	**5/9/2019**	**5/11/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/11/2021**	**7/1/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/11/2021**	**7/1/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/11/2021**	**10/4/2021**
Table 3+ PFAS (ng/L)																		
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	ND	ND	ND	ND	ND	**3**	**4**	ND	**1**	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
PMPA	--	--	--	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	--	--	ND		ND	--	--	ND	ND	ND	--	--	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	ND	--	--	--	ND	ND	--	--	--	ND	ND	--	--	--	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	--	--	ND		ND	--	--	ND	ND	ND	--	--	ND	ND
Hydro-EVE	--	--	ND	ND	--	--	ND		ND	--	--	ND	ND	ND	--	--	ND	ND
R-EVE	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)																		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	ND	--	--	--		ND	--	--	--	ND	ND	--	--	--	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	**20**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well J-Pee Dee Source				Well K-Castle Hayne Source					Well K-Pee Dee Source					Well L-Castle Hayne Source			
Location ID	**171**				**174**					**177**					**180**			
Sample Date	**5/9/2019**	**5/9/2019**	**5/11/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/11/2021**	**7/1/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/11/2021**	**7/1/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/11/2021**	**10/4/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND		ND	--	--	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	ND	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	ND	ND	ND			ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	ND	ND	ND		**1**	ND	ND	ND	ND	ND	ND	ND	ND	
Perfluorohexanoic acid (PFHxA)	ND	ND	ND	ND	ND	ND	ND			ND	ND	ND		ND	ND	ND	ND	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	--	ND	ND	--	--	ND	ND	ND	--	--	ND	ND	ND	--	--	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND		ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	ND	ND	ND	ND	ND	ND	ND			ND	ND	ND		ND	ND	ND	ND	
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	ND	**1**	**1**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	ND	ND	ND	ND	**3**	**4**	ND	**1**	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	ND	ND	ND	ND	ND	**3**	**4**	ND	**1**	ND	ND	ND	ND	ND	ND	ND
Total Other PFAS (ng/L)	ND	ND	ND	ND	ND	**2**	**22**	**2**	**1**	ND	ND	ND			ND	ND	ND	**1**
Total of all Compounds (ng/L)	ND	ND	ND	ND	ND	**2**	**22**	**5**	**5**	ND	**1**	ND			ND	ND	ND	**1**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well L-Pee Dee Source				Well P-Pee Dee Source				Well Q-Pee Dee Source				Well#5 Source-225 McQuillan Dr.					
Location ID	**183**				**186**				**189**				**192**					
Sample Date	**5/9/2019**	**5/9/2019**	**5/11/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/12/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/12/2021**	**10/4/2021**	**5/6/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**4/6/2021**	**10/7/2021**
Table 3+ PFAS (ng/L)																		
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND	**7**	**6**	**4**	**3**	ND	ND	ND		ND	ND	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	ND	ND	**51**	**56**	**350**	**300**	**2**	ND	**11**	**29**	ND	ND	ND	ND	ND	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND	**40**	**46**	**31**	**14**	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND	**10**	**9**	**9**	**7**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	ND	ND
PMPA	--	--	--	ND	--	--	--	**2**	--	--	--	ND	--	--	--	--	--	ND
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	--	ND	ND	--	--	**2**	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	--	ND	ND	--	--	**6**	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Byproduct 6 (BP6 or R-PSDCA)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	ND	--	--	--	**4**	--	--	--	ND	--	--	--	--	--	ND
Perfluoroethoxypropionic acid (EVE Acid)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Hydro-EVE	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
R-EVE	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	ND	**5**	**5**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND	**2**	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Other PFAS (ng/L)																		
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
FBSA	--	--	--	ND	--	--	--	ND	--	--	--	ND	--	--	--	--	--	ND
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well L-Pee Dee Source				Well P-Pee Dee Source				Well Q-Pee Dee Source				Well#5 Source-225 McQuillan Dr.					
Location ID	**183**				**186**				**189**				**192**					
Sample Date	**5/9/2019**	**5/9/2019**	**5/11/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/12/2021**	**10/4/2021**	**5/9/2019**	**5/9/2019**	**5/12/2021**	**10/4/2021**	**5/6/2019**	**10/1/2019**	**6/11/2020**	**10/6/2020**	**4/6/2021**	**10/7/2021**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	ND	ND	ND	ND	**2**	**1**	**1**	**1**	**1**	**1**	**1**		ND	ND	ND	ND	ND	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND	**4**	**3**	**3**	**1**	ND	ND	**1**	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND	**2**	**2**	**1**	**1**	ND	ND	ND		ND	ND	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	--	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND	**2**	**2**	**2**	**1**	**2**	**2**	**2**	**2**	ND	ND	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	ND	ND	ND	ND	**3**	**3**	**2**	**1**	**1**	**1**	**1**	**1**	ND	ND	ND	ND	ND	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	--	ND	ND	--	--	ND	ND	--	--	ND	ND	--	--	--	ND	ND	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND	**5**	**5**	**3**	**2**	**1**	**1**	**1**	**1**	ND	ND	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	ND	ND	ND	ND	**3**	**3**	**2**	**2**	**1**	ND	ND	**1**	ND	ND	ND	ND	ND	ND
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		ND	ND	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND	**4**	**3**	**3**	**2**	**1**	**1**	**1**	**1**	ND	ND	ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	ND	**110**	**120**	**400**	**330**	**2**	ND	**13**	**29**	ND	ND	ND	ND	ND	ND
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	ND	ND	**110**	**120**	**410**	**330**	**2**	ND	**12**	**30**	ND	ND	ND	ND	ND	ND
Total Other PFAS (ng/L)	ND	ND	ND	ND	**24**	**22**	**18**	**11**	**6**	**5**	**7**	**5**	ND	ND	ND	ND	ND	ND
Total of all Compounds (ng/L)	ND	ND	ND	ND	**140**	**140**	**420**	**340**	**8**	**5**	**20**	**35**	ND	ND	ND	ND	ND	ND

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well#6 Source-124 Southwold Dr.(46)		Well#7 Source-5401 Myrtle Grove Rd (47).	
Location ID	193		194	
Sample Date	1/28/2020	10/6/2020	1/28/2020	10/6/2020
Table 3+ PFAS (ng/L)				
2,3,3,3-Tetrafluoro-2-(1,1,2,2,3,3,3-heptafluoropropoxy)-propanoic acid or Hexafluoropropyleneoxide dimer acid (HFPO-DA or PFPrOPrA or GenX)	ND	ND	ND	ND
Perfluoro-2-methyl-3-oxahexanoic acid (GenX)	--	--	--	--
Perfluoro-2-methoxyacetic acid (PFMOAA)	ND	ND	ND	ND
Perfluoro(3,5-dioxahexanoic) acid (PFO2HxA)	ND	ND	ND	ND
Perfluoro(3,5,7-trioxaoctanoic) acid (PFO3OA)	ND	ND	ND	ND
Perfluoro(3,5,7,9-tetraoxadecanoic) acid (PFO4DA)	ND	ND	ND	ND
Sodium 2,2,4,4,6,6,8,8,10,10,12,12,12-tridecafluoro- 3,5,7,9,11-pentaoxadodecanoate or Perfluoro(3,5,7,9,11-pentaoxadodecanoic) acid (PFO5DA or TAF) -	--	ND	--	ND
PMPA	--	--	--	--
Sodium 2,3,3,3-tetrafluoro-2-(perfluoroethoxy)propanoic acid or Perfluoroethoxypropyl carboxylic acid (PEPA)	--	ND	--	ND
Nafion Byproduct 1 (PS Acid)	ND	ND	ND	ND
Nafion Byproduct 2 (Hydro-PS Acid)	ND	ND	ND	ND
Byproduct 4 (BP4 of R-PSDA)	--	ND	--	ND
Byproduct 5 (BP5 or Hydrolyzed PSDA))	--	ND	--	ND
Byproduct 6 (BP6 or R-PSDCA)	--	ND	--	ND
1,1,2,2-Tetrafluoro-2-(1,2,2,2-tetrafluoroethoxy)ethane sulfonic acid (NVHOS)	--	--	--	--
Perfluoroethoxypropionic acid (EVE Acid)	--	ND	--	ND
Hydro-EVE	--	ND	--	ND
R-EVE	--	ND	--	ND
Perfluoro(2-ethoxyethane) sulfonic acid (PFEESA or PES)	--	ND	--	ND
Nonafluoro-3,6-dioxaheptanoic acid (NFDHA or PFECA B)	--	ND	--	ND
4-(Heptafluoroisopropoxy)hexafluorobutanoic acid (PFECA-G)	ND	ND	ND	ND
Perfluoro-3-methoxypropanoic acid (PFMOPrA or PFMPA)	ND	ND	ND	**19**
Perfluoro-4-methoxybutanic acid (PFMOBA or PFMBA)	ND	ND	ND	ND
Other PFAS (ng/L)				
11-chloroeicosafluoro-3-oxaundecane-1-sulfonate (PF3OUdS or 11-Cl-PF3OUdS)	ND	ND	ND	ND
2-(N-ethylperfluoro-1-octanesulfonamido)-ethanol or N-Ethylperfluorooctane sulfonamido ethanol (N-EtFOSE)	ND	ND	ND	ND
2-(N-methylperfluoro-1-octanesulfonamido)-ethanol (N-MeFOSE)	ND	ND	ND	ND
9-chlorohexadecafluoro-3-oxanonane-1-sulfonate or 9-Chlorohexadecafluoro-3-oxanonane-1-sulfonic acid (PF3ONS or 9-Cl-PF3ONS)	ND	ND	ND	ND
FBSA	--	--	--	--
Fluorotelomer sulfonate 10:2 or 1H, 1H, 2H, 2H-perfluorododecane sulfonic acid (10:2 FTS)	ND	ND	ND	ND
Fluorotelomer sulfonate 4:2 or 1H, 1H, 2H, 2H-Perfluorohexane sulfonic acid (4:2 FTS)	ND	ND	ND	ND
Fluorotelomer sulfonate 6:2 or 1H, 1H, 2H, 2H-Perfluorooctane sulfonic acid (6:2 FTS)	ND	ND	ND	ND
Fluorotelomer sulfonate 8:2 or 1H, 1H, 2H, 2H-Perfluorodecane sulfonic acid (8:2 FTS)	ND	ND	ND	ND
N-ethylperfluoro-1-octanesulfonamide or N-Ethylperfluorooctane sulfonamide (EtFOSAm or N-EtFOSA)	ND	ND	ND	ND

APPENDIX C
PFAS Results in Groundwater from NCDEQ
Sampling of Non-Private Wells in New Hanover County (2019-2021)

Sample Location	Well#6 Source-124 Southwold Dr.(46)		Well#7 Source-5401 Myrtle Grove Rd (47).	
Location ID	**193**		**194**	
Sample Date	**1/28/2020**	**10/6/2020**	**1/28/2020**	**10/6/2020**
N-ethylperfluoro-1-octanesulfonamidoacetic acid or N-Ethylperfluorooctane sulfonamido acetic acid (NEtFOSAA)	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamide or N-Methylperfluorooctane sulfonamide (NMeFOSA)	ND	ND	ND	ND
N-methylperfluoro-1-octanesulfonamidoacetic acid or N-Methylperfluorooctane sulfonamido acetic acid (NMeFOSAA)	ND	ND	ND	ND
Perfluoro-1-dodecanesulfonate or Perfluorododecane sulfonic acid (PFDoS)	--	ND	--	ND
Perfluorobutanesulfonate or Perfluorobutane sulfonic acid (PFBS)	ND	ND	ND	ND
Perfluorobutyric acid or Perfluorobutanoic acid (PFBA)	ND	ND	ND	ND
Perfluorodecanesulfonate or Perfluorodecane sulfonic acid (PFDS)	ND	ND	ND	ND
Perfluorodecanoic acid (PFDA)	ND	ND	ND	ND
Perfluorododecanoic acid (PFDoA)	ND	ND	ND	ND
Perfluoroheptanesulfonate orPerfluoroheptane sulfonic acid (PFHpS)	ND	ND	ND	ND
Perfluoroheptanoic acid (PFHpA)	ND	ND	ND	ND
Perfluorohexadecanoic acid (PFHxDA)	ND	ND	ND	ND
Perfluorohexanesulfonate or Perfluorohexane sulfonic acid (PFHxS)	ND	ND	ND	ND
Perfluorohexanoic acid (PFHxA)	ND	ND	ND	ND
Perfluorononanesulfonate or Perfluorononane sulfonic acid (PFNS)	ND	ND	ND	ND
Perfluorononanoic acid (PFNA)	ND	ND	ND	ND
Perfluorooctadecanoic acid (PFODA)	--	ND	--	ND
Perfluorooctane sulfonamide (PFOSA or PFOSAm)	ND	ND	ND	ND
Perfluorooctanesulfonate or Perfluorooctane sulfonic acid (PFOS)	ND	ND	ND	ND
Perfluorooctanoic acid (PFOA)	ND	ND	ND	ND
Perfluoropentanesulfonate or Perfluoropentane sulfonic acid (PFPeS)	ND	ND	ND	ND
Perfluoropentanoic acid (PFPeA)	ND	ND	ND	ND
Perfluorotetradecanoic acid (PFTeDA or PFTDA)	ND	ND	ND	ND
Perfluorotridecanoic acid (PFTrDA)	ND	ND	ND	ND
Perfluoroundecanoic acid (PFUdA or PFUnDA)	ND	ND	ND	ND
Sodium dodecafluoro-3H-4,8-dioxanonanoate or 4,8-Dioxa-3H-perfluorononanoic acid (ADONA or DONA)	ND	ND	ND	ND
Total Table 3+ Compounds (17 Compounds) (ng/L)	ND	ND	ND	**19**
Total Table 3+ Compounds (20 Compounds) (ng/L)	ND	ND	ND	**19**
Total Other PFAS (ng/L)	ND	ND	ND	ND
Total of all Compounds (ng/L)	ND	ND	ND	**19**

Notes:
1. Data were provided by NCDEQ and includes NCDEQ or CFPUA monitoring w
2. Concentrations are presented in ng/L.
3. Total Table 3+ (17 compounds) does not include R-PSDA, Hydrolyzed PSDA,
CFPUA - Cape Fear Public Utility Authority
NCDEQ - North Carolina Department of Environmental Quality
ng/L : nanograms per liter
ND - Compound not detected
PFAS - per and polyfluoroalkyl substances
-- - Not applicable

Appendix D
Additional Potential Analytes for Analysis

APPENDIX D
Additional Potential Analytes for Analysis

Other Analytes	Lab Method
2,3,7,8-TCDD	1613B
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
Thallium	200.8
Hexavalent Chromium	218.6
Mercury	245.1
Bromide	300.0
Chlorate	300.0
Chloride	300.0
Chlorite	300.0
Fluoride	300.0
Nitrate	300.0/353.2
Nitrite	300.0/353.2
Sulfate	300.0
Bromate	300.1
Perchlorate	331.0
Cyanide	335.4
Phosphate	365 / 14500-P
Chloramine	4500 CL F
Chlorine	4500 CL F
Chlorine Dioxide	4500 CL F
1,2-Dibromo-3-Chloropropane	504.1

Other Analytes	Lab Method
1,2-Dibromoethane (EDB)	504.1
1,2,3-Trichloropropane	505/552.2
Chlordane	505
PCB 1016	505
PCB 1221	505
PCB 1232	505
PCB 1242	505
PCB 1248	505
PCB 1254	505
PCB 1260	505
Total PCB (congeners)	505
Toxaphene	505
2,4-Dichlorophenoxyacetic Acid	515.3
Dalapon 85	515.3
Dicamba	515.3
Dinoseb	515.3
Pentachlorophenol	515.3/L200
Picloram	515.3
Silvex	515.3
1,4-Dioxane	522
Bromodichloromethane	524.2
Bromoform	524.2
Chlorodibromomethane	524.2
Chloroform	524.2
Alachlor	525.2 Rev 2.0
Aldrin	525.2 Rev 2.0
Atrazine	525.2 Rev 2.0
Benzo[A]Pyrene	525.2 Rev 2.0
Bis(2-Ethylhexyl)Adipate	525.2 Rev 2.0
Bis(2-Ethylhexyl)Phthalate	525.2 Rev 2.0
Butachlor	525.2 Rev 2.0
Dieldrin	525.2 Rev 2.0
Endrin	525.2 Rev 2.0
Heptachlor	525.2 Rev 2.0
Heptachlor Epoxide	525.2 Rev 2.0
Hexachlorobenzene	525.2 Rev 2.0
Hexachlorocyclopentadiene	525.2 Rev 2.0
Lindane	525.2 Rev 2.0
Methoxychlor	525.2 Rev 2.0
Metolachlor	525.2 Rev 2.0
Metribuzin	525.2 Rev 2.0
Propachlor	525.2 Rev 2.0

Other Analytes	Lab Method
Simazine	525.2 Rev 2.0
Alpha-BHC	525.3
Chlorpyrifos	525.3
Dimethipin	525.3
Merphos Oxide	525.3
Mocap	525.3
Oxyfluorfen	525.3
Permethrin	525.3
Tebuconazole	525.3
Buytlated Hydroxyanisole	530
O-Toluidine	530
Quinoline	530
3-Hydroxycarbofuran	531.2
Aldicarb	531.2
Aldicarb Sulfone	531.2
Aldicarb Sulfoxide	531.2
Carbaryl	531.2
Carbofuran	531.2
Methomyl	531.2
Oxamyl	531.2
Total Organic Carbon	5310 C-2011
Glyphosate	547
Endothall	548.1
Diquat Dibromide	549.2
Dibromoacetic Acid	552.2
Dichloroacetic Acid	552.2/552.3
Monobromoacetic Acid	552.2/552.3
Monochloroacetic Acid	552.2/552.3
Total Haloacetic Acids(5)	552.2/552.3
Trichloroacetic Acid	552.2/552.3
Bromochloroacetic Acid	552.3
Bromodichloroacetic acid	552.3
Chlorodibromoacetic acid	552.3
Tribromoacetic acid	552.3
Total Coliforms by Presence/Absence	9222B
Pentachlorophenol	L200
2,4,6-Trichlorophenol	L200
4-N-Nonylphenol	L200
4-n-Octylphenol	L200
4-tert-Octylphenol	L200
Bisphenol A	L200
Phenylphenol	L200

Other Analytes	Lab Method
Tetrabromobisphenol A	L200
17alpha-Estradiol	L211
17alpha-Ethynyl estradiol	L211
cis-Testosterone	L211
Diethylstilbestrol	L211
Estradiol 17B	L211
Estriol	L211
Estrone	L211
Progesterone	L211
trans-Testosterone	L211
Acetaminophen	L220
Antipyrine	L220
Atenolol	L220
Azithromycin	L220
Caffeine	L220
Carbadox	L220
Carbamazepine	L220
Cotinine	L220
Dexamethasone	L220
Diazepam	L220
Diltiazem	L220
Erythromycin	L220
Fluoxetine (Prozac)	L220
Iopromide	L220
Lincomycin	L220
Meprobamate	L220
Monensin	L220
N,N-Diethyl-3-Methylbenzamide	L220
Narasin	L220
Nicotine	L220
Oleandomycin	L220
Paraxanthine	L220
Primidone	L220
Roxithromycin	L220
Salinomycin	L220
Sulfadiazine	L220
Sulfadimethoxine	L220
Sulfamethazine	L220
Sulfamethizole	L220
Sulfamethoxazole	L220
Sulfasalazine	L220
Sulfathiazole	L220

APPENDIX D
Additional Potential Analytes for Analysis

Other Analytes	Lab Method
Theobromine	L220
Trimethoprim	L220
Tris(1-Chloro-2-Propyl)Phosphate	L220
Tris(2-Chloroethyl) Phosphate	L220
Tylosin	L220
Virginiamycin M1	L220
Acesulfame-K	L221
Bezafibrate	L221
Chloramphenicol	L221
Chlorotetracycline	L221
Clofibric Acid	L221
Diclofenac	L221
Gemfibrozil	L221
Ibuprofen	L221
Levothyroxine (Synthroid)	L221
Naproxen	L221
Penicillin G	L221
Penicillin V	L221
Phenytoin	L221
Prednisone	L221
Salicylic Acid	L221
Sucralose	L221
Theophylline	L221
Triclocarban	L221
Triclosan	L221
Hfpo Dimer Acid	EPA 537 Rev. 1.1 modified
PFMOAA	Cl. Spec. Table 3 Compound SOP
PFO2HxA	Cl. Spec. Table 3 Compound SOP
PFO3OA	Cl. Spec. Table 3 Compound SOP
PFO4DA	Cl. Spec. Table 3 Compound SOP
PFO5DA	Cl. Spec. Table 3 Compound SOP
PMPA	Cl. Spec. Table 3 Compound SOP
PEPA	Cl. Spec. Table 3 Compound SOP
PFESA-BP1	Cl. Spec. Table 3 Compound SOP
PFESA-BP2	Cl. Spec. Table 3 Compound SOP
Byproduct 4	Cl. Spec. Table 3 Compound SOP
Byproduct 5	Cl. Spec. Table 3 Compound SOP
Byproduct 6	Cl. Spec. Table 3 Compound SOP
NVHOS	Cl. Spec. Table 3 Compound SOP
EVE Acid	Cl. Spec. Table 3 Compound SOP
Hydro-EVE Acid	Cl. Spec. Table 3 Compound SOP
R-EVE	Cl. Spec. Table 3 Compound SOP

APPENDIX D
Additional Potential Analytes for Analysis

Other Analytes	Lab Method
PES	Cl. Spec. Table 3 Compound SOP
PFECA B	Cl. Spec. Table 3 Compound SOP
PFECA-G	Cl. Spec. Table 3 Compound SOP
10:2 Fluorotelomer sulfonate	EPA 537 Rev. 1.1 modified
11Cl-PF3OUdS	EPA 537 Rev. 1.1 modified
1H,1H,2H,2H-perfluorodecanesulfonate (8:2 FTS)	EPA 537 Rev. 1.1 modified
1H,1H,2H,2H-perfluorohexanesulfonate (4:2 FTS)	EPA 537 Rev. 1.1 modified
2-(N-ethyl perfluoro-1-octanesulfonamido)-ethanol	EPA 537 Rev. 1.1 modified
2-(N-methyl perfluoro-1-octanesulfonamido)-ethanol	EPA 537 Rev. 1.1 modified
6:2 Fluorotelomer sulfonate	EPA 537 Rev. 1.1 modified
9Cl-PF3ONS	EPA 537 Rev. 1.1 modified
DONA	EPA 537 Rev. 1.1 modified
N-ethyl perfluorooctane sulfonamidoacetic acid	EPA 537 Rev. 1.1 modified
N-ethylperfluoro-1-octanesulfonamide	EPA 537 Rev. 1.1 modified
N-methyl perfluoro-1-octanesulfonamide	EPA 537 Rev. 1.1 modified
N-methyl perfluorooctane sulfonamidoacetic acid	EPA 537 Rev. 1.1 modified
Perfluorobutane Sulfonic Acid	EPA 537 Rev. 1.1 modified
Perfluorobutanoic Acid	EPA 537 Rev. 1.1 modified
Perfluorodecane Sulfonic Acid	EPA 537 Rev. 1.1 modified
Perfluorodecanoic Acid	EPA 537 Rev. 1.1 modified
Perfluorododecane sulfonic acid (PFDoS)	EPA 537 Rev. 1.1 modified
Perfluorododecanoic Acid	EPA 537 Rev. 1.1 modified
Perfluoroheptane sulfonic acid (PFHpS)	EPA 537 Rev. 1.1 modified
Perfluoroheptanoic Acid	EPA 537 Rev. 1.1 modified
Perfluorohexadecanoic acid (PFHxDA)	EPA 537 Rev. 1.1 modified
Perfluorohexane Sulfonic Acid	EPA 537 Rev. 1.1 modified
Perfluorohexanoic Acid	EPA 537 Rev. 1.1 modified
Perfluorononanesulfonic acid	EPA 537 Rev. 1.1 modified
Perfluorononanoic Acid	EPA 537 Rev. 1.1 modified
Perfluorooctadecanoic acid	EPA 537 Rev. 1.1 modified
Perfluorooctane Sulfonamide	EPA 537 Rev. 1.1 modified
Perfluoropentane sulfonic acid (PFPeS)	EPA 537 Rev. 1.1 modified
Perfluoropentanoic Acid	EPA 537 Rev. 1.1 modified
Perfluorotetradecanoic Acid	EPA 537 Rev. 1.1 modified
Perfluorotridecanoic Acid	EPA 537 Rev. 1.1 modified
Perfluoroundecanoic Acid	EPA 537 Rev. 1.1 modified
PFOA	EPA 537 Rev. 1.1 modified
PFOS	EPA 537 Rev. 1.1 modified

Appendix E
Information Gathered from Public Sources

APPENDIX E1
List of Water Treatment Plants Potentially Utilizing Cape Fear River Water

Distribution System	Date of Cape Fear River Water Usage Start	County
NW Brunswick Water Treatment Plant	Data requested	Brunswick
Sweeney Water Treatment Plant	Data requested	New Hanover
Richardson Treatment Plant	Data requested	New Hanover
Pender County 421 Water Treatment Plant	Data requested	Pender

Notes:
Information about water treatment plants was obtained through internet searches.

APPENDIX E2
List of Water Distribution Systems Potentially Utilizing Cape Fear River Water

County	Distribution System	Start Date of Cape Fear River Water Use
Brunswick	Brunswick County	Data Requested
	Shallotte	Data Requested
	Ocean Isle Beach	Data Requested
	South Port	Data Requested
	Oak Island	Data Requested
	Holden Beach	Data Requested
	Leland	Data Requested
	Bald Head Island	Data Requested
	H2GO	Data Requested
	Northwest	Data Requested
	Navassa	Data Requested
New Hanover	Cape Fear Public Utility Authority	Data Requested
	Town of Wrightsville Beach (from LCFWASA)	Data Requested
	Town of Carolina Beach (from LCFWASA)	Purchases water from CFPUA; Data Requested
	Aqua of NC, Inc.	Data Requested
Pender	Rocky Point/Topsail Water District	Data Requested
	Scotts Hill Water & Sewer District	~1996 to present[1]
	Maple Hill Water District	~1996 to present
	Central Pender Water District	~1996 to present
	Columbia-Union Water District	~1996 to present
	Moore's Creek Water District	~1996 to present
Columbus	Riegelwood Sanitary District	2009 to present[2]
	Columbus County Water District I	Data Requested
	Columbus County Water District II	Data Requested
	Columbus County Water District III	Data Requested
New Hanover, Brunswick, Columbus, and Pender	Lower Cape Fear Water and Sewer Authority	Data Requested

Notes:

Information about distribution systems was obtained through the NC One Map online database and internet searches. Specific websites with sources of information are listed below.

1. https://www.pendercountync.gov/utl/
2. https://www.manta.com/c/mtc7tt0/riegel-wood-sanitary-district

List of WWTPs Potentially Receiving Sanitary Water Originally Sourced from Cape Fear River

Distribution System	Collects Water Originating from Cape Fear River	County
Sweeney Water Treatment Plant	Data requested	New Hanover
Richardson	Data requested	New Hanover
Tabor City Wastewater Treatment Plant	Data requested	Columbus
James A. Loughlin Wastewater Treatment Plant (NSWWTP; CFPUA)	Assumed Yes	New Hanover
M'Kean Maffitt Wastewater Treatment Plant (SSWWTP; CFPUA)	Assumed Yes	New Hanover
Pender County Utilities	Data requested	Pender
Brunswick Regional Water & Sewer H2GO	Assumed Yes	Brunswick
Brunswick County Northwest Water Plant	Assumed Yes	Brunswick
West Brunswick Regional Water Reclamation Facility	Assumed Yes	Brunswick

Notes:
Information about wastewater treatment plants was compiled from publicly available databases.

WWTPs: wastewater treatment plants

APPENDIX E4
List of Known Distribution System and Sanitary System Leak Locations for Systems Potentially Utilizing Cape Fear River Water

Distribution System	Date of Leak	Duration	Volume	County
No records yet provided	--	--	--	--

Notes:
No records of known leaks in distribution system or sanitary systems have been provided by the counties or utility providers since requests were issued beginning December 14, 2021.