

# **NORTH CAROLINA PER- AND POLYFLUOROALKYL SUBSTANCES TESTING (PFAST) NETWORK**

Quarterly Progress Report (#9) submitted to the North Carolina General Assembly Environmental Review Commission, the NC Department of Environmental Quality, the NC Department of Health and Human Services, and the US Environmental Protection Agency (Region 4)

*October 1, 2020*



## 1.0 INTRODUCTION

The North Carolina General Assembly (NCGA), in the passing of Session Law (SL) 2018-5, Sections 13.1.(g), directed the North Carolina Policy Collaboratory (Collaboratory) to *“identify faculty expertise, technology, and instrumentation, including mass spectrometers, located within institutions of higher education in the State, including the Universities of North Carolina at Chapel Hill and Wilmington, North Carolina State University, North Carolina A&T University, Duke University, and other public and private institutions, and coordinate these faculty and resources to conduct nontargeted analysis for PFAS, including GenX, at all public water supply surface water intakes and one public water supply well selected by each municipal water system that operates groundwater wells for public drinking water supplies as identified by the Department of Environmental Quality, to establish a water quality baseline for all sampling sites. The Collaboratory, in consultation with the participating institutions of higher education, shall establish a protocol for the baseline testing required by this subsection, as well as a protocol for periodic retesting of the municipal intakes and additional public water supply wells.”* The term ‘PFAS’, listed above, refers to Per- and Polyfluoroalkyl Substances and the study is referred to herein as the NC PFAS Testing Network or PFAST Network.

The PFAST Network was funded by an appropriation from the NCGA. Section 13.1.(i) of SL 2018-5 states, *“Five million thirteen thousand dollars (\$5,013,000) of the funds appropriated in this act for the 2018-2019 fiscal year to the Board of Governors of The University of North Carolina shall be allocated to the Collaboratory to manage and implement the requirements of this section, which shall include distribution to the Collaboratory and participating institutions of higher education (i) to cover costs incurred as a result of activities conducted pursuant to this section, (ii) for acquisition or modification of essential scientific instruments, or (iii) for payments of costs for sample collection and analysis, training or hiring of research staff and other personnel, method development activities, and data management, including dissemination of relevant data to stakeholders. No overhead shall be taken from these funds from the participating institutions that receive any portion of these funds. Funds appropriated by this section shall not revert but shall remain available for nonrecurring expenses.”*

In addition to the water sampling identified above, additional study parameters are mandated in Section 13.1.(l), which states, *“The Collaboratory shall identify faculty expertise within institutions of higher education in the State, including the Universities of North Carolina at Chapel Hill and Wilmington, North Carolina State University, North Carolina A&T State University, Duke University, and other public and private institutions, and use technology and instrumentation existing throughout the institutions to conduct the following research (i) develop quantitative models to predict which private wells are most at risk of contamination from the discharge of PFAS, including GenX; (ii) test the performance of relevant technologies in removing such compounds; and (iii) study the air emissions and atmospheric deposition of PFAS, including GenX. In addition, Collaboratory may, using relevant faculty expertise, technology, and instrumentation existing throughout institutions identified, evaluate other research opportunities and conduct such research for improved water quality sampling and analyses techniques, data interpretation, and potential mitigation measures that may be necessary, with respect to the discharge of PFAS, including GenX.”*

Research activities to carry out these legislative mandates and progress made to date are summarized in this this document which represents the ninth [quarterly] report. For reference, all provisions passed by the NCGA in Section 13 of Session Law 2018-5 [related to this project] are included in Appendix I of this report.

## **2.0 REPORTING REQUIREMENTS**

Section 13.1.(h) of SL 2018-5 states, *“Beginning October 1, 2018, the Collaboratory shall report no less than quarterly to the Environmental Review Commission, the Department of Environmental Quality, and the Department of Health and Human Services on all activities conducted pursuant to this section, including any findings and recommendations for any steps the Department of Environmental Quality, the Department of Health and Human Services, the General Assembly, or any other unit of government should take in order to address the impacts of PFAS, including GenX, on surface water and groundwater quality, as well as air quality in the State.”* In addition, Section 13.1(g) states, *“No later than December 1, 2019, Collaboratory shall report the results of such sampling by identifying chemical families detected at each intake to the Environmental Review Commission, the Department of Environmental Quality, the Department of Health and Human Services, and the United States Environmental Protection Agency.*

Subsequently, Senate Bill 433 was ratified by the NC General Assembly and adopted November 6, 2019 as Session Law 2019-241. Section 7.(d) includes revision of the original language from Section 13.1(g) of S.L. 2018-5, extending the deadline for submission of the Collaboratory’s final PFAST Network report to October 15, 2020. The legislative language in Section 7 of SL 2019-241 is provided for reference in Appendix II of this progress report. The extension was granted (without additional appropriations) to ensure sufficient time for completing comprehensive analysis and interpretation of non-targeted data and to enable additional sampling of drinking water supplies during different seasons.

*The deadline for submission of the final report of the PFAS Testing Network has been moved to April 15, 2021 per Section 8.(a) of Session Law 2020-74, House Bill 308. The specific legislative language is provided for reference in Appendix III of this document.*

This report fulfills the initial NCGA requirement for submission of quarterly progress reports and summarizes the work carried out since July 1, 2020. A final report summarizing findings and recommendations will be submitted by the Collaboratory to the Environmental Review Commission, the Department of Environmental Quality, the Department of Health and Human Services, and the United States Environmental Protection Agency (Region 4) no later than April 15, 2021.

### 3.0 QUARTERLY PROGRESS UPDATE

The COVID-19 pandemic has impacted the remaining sample collections and laboratory experiments and has prevented in-person meetings since March of this year. Academic labs are operating again, however at reduced capacities, and the Network researchers are holding and attending all meetings virtually. During this past quarter from July 1, through September 30, 2020, researchers have been working to finish their assessments of baseline levels of PFAS in North Carolina public drinking water supplies, private wells, wastewater (influent and effluent), landfill leachates, rainwater and ambient air (gas and particle phases). Additional areas being investigated include: the presence and impacts of PFAS in ecologically relevant animal species such as alligators and different species of fish; effects of soil composition on uptake and distribution of PFAS in crop plants; and effects of PFAS exposure on the immune response, pregnancy, and development.

The Communications team and the Data Science and Management team have been working with the research teams to share preliminary (pending publication) results with various stakeholders. Teams are finalizing their data for public release and visualization via an online portal to the DataHub which is currently being tested by a focus group. In lieu of a fall symposium originally planned to be held this year in Raleigh, the NC State members of the Communications team have been organizing a 4-part virtual seminar series. The event kicked off on September 18th addressing the topic of PFAS in Drinking Water Sources. There were brief presentations by NCSU Professors Detlef Knappe and Helena Mitsova from the PFAST Network, Haw Riverkeeper Emily Sutton, and NC DEQ Division of Waste Management Director Michael Scott followed by a live Q&A session. Information about the next two seminars (“PFAS and Contamination Reduction” and “PFAS in Plants and Fish”) is available in the October events calendar on the NC PFAST Network [website](#).

Brief progress updates provided by Network research teams are described below.

#### PFAS Water Sampling and Analysis

- As reported previously, the second round of sampling of surface water intakes and groundwater wells throughout the state had to be temporarily suspended for public safety reasons. Approximately 130 samples have been collected so far in Round 2 and targeted analysis for PFAS concentrations is nearly complete. Given the current limitations on public access to sites, the team has been working on a revised sampling strategy and designing sample collection kits and a protocol that will enable water system operators to ship samples to the team in an appropriately controlled and consistent manner.
- Total fluorine analysis via Adsorbable Organic Fluorine (AOF) measurements has been completed by Dr. Mei Sun’s group for roughly 300 of the 376 Round 1 water samples. Once the labs at UNC Charlotte reopen, they will analyze the remaining samples.
- Non-target and suspect screening using high resolution mass spectrometry and spectral libraries to identify novel PFAS, PFAS precursors, and PFAS transformation products is resuming at Duke and NC State. The team has been reviewing PFAS concentration profiles and Total Organic Fluorine data from Round 1 to aid in prioritizing samples for non-target analysis.

### Private Well Risk Modeling

- Drs. Genereux and Pétré carried out field work in Georgia Branch on July 10 to sample groundwater along a vertical profile beneath the streambed for noble gases, sulfur hexafluoride (SF<sub>6</sub>), PFAS and major ions analyses. Analysis for noble gas and SF<sub>6</sub> (for groundwater dating) are underway at the Noble Gas Lab at the University of Utah. They also conducted reconnaissance work around Chemours on July 23<sup>rd</sup> to identify potential locations for additional SF<sub>6</sub> and tritium (<sup>3</sup>H) analyses. Marie-Amelie Pétré built three new field manometers in preparation for additional field work in Georgia Branch, Willis Creek and Mines Creek this fall.
- Dave Genereux submitted a grant proposal "Quantifying the timescale of PFAS flushing from a contaminated aquifer to wells and streams using an age-dating methodology" to the NSF (EAR-Hydrologic Sciences Program) on August 31, 2020. This is a collaborative proposal between: NC State University Departments of Marine, Earth, and Atmospheric Sciences (PI Genereux and Post-doc Pétré) and Civil, Construction, and Environmental Engineering (co-PI Knappe) and the University of Utah Department of Geology and Geophysics (Collaborator Solomon).
- Marie-Amélie Pétré and Dave Genereux presented "Occurrence and transport of PFAS in groundwater near the Fayetteville Works manufacturing site" at the PFAST Network Monthly Stakeholders Advisory Committee Meeting in September, 2020.
- The team has an abstract accepted for the Geological Society of America annual conference (October 26-30, 2020): "Per- and Polyfluoroalkyl substance (PFAS) transport from groundwater to streams near a PFAS manufacturing facility in North Carolina". The contributing authors are: Marie-Amélie Pétré, Lydia Koropecykj-Cox, Sandrine Duboscq, David P. Genereux, Detlef R.U. Knappe, Troy E. Gilmore, and Zachary R. Hopkins.
- Graduate student Sandrine Duboscq completed her Master's thesis, believed to be the first known publication coupling PFAS data with groundwater age-dating tracers: "3H/3He groundwater ages and discharge of per- and polyfluoroalkyl substances (PFAS) from groundwater to a stream near the Chemours Plant in Bladen County, NC" Duboscq, Sandrine. 2020. M.S. Thesis, Department of Marine, Earth, and Atmospheric Sciences, North Carolina State University, Raleigh, NC, 72 pages. <https://repository.lib.ncsu.edu/handle/1840.20/38093>.
- UNC Chapel Hill Adjunct Professor Jacqueline MacDonald Gibson (PI) received a \$1,584,420 grant from the US EPA Science to Achieve Results (STAR) Program to conduct a new project titled: "Predicting and Communicating PFAS Exposure Risks from Rural Private Wells," and her team is preparing to submit their first paper describing the risk analysis of GenX contamination in private well water using the Bayesian Network machine learning model.

### PFAS Removal Performance Testing

- The team continued their evaluation of PFAS removal by granular activated carbon (GAC). They applied a mathematical model (pore diffusion model) to their GAC adsorption data and quantitatively compared the adsorbability of PFAS with different structures. They also developed a rapid experimental approach to predict field-scale GAC performance for PFAS removal and are planning to conduct additional rapid small-scale column tests for three additional GACs.

- Experiments were conducted to evaluate the effect of chloride and sulfate anions on the performance of PFAS-specific (PFA694E) and regenerable (IRA910) ion exchange (IX) resins and bench-scale column tests were designed for comparing the removal of PFAS by PFA694E and IRA910. The team is planning to start the column tests soon and will also test the effect of other anions (bicarbonate and nitrate) and natural organic matter on the performance of PFA694E and IRA910.
- The modified Boron Doped Diamond (BDD) electrode reactor was tested for efficiency in electrochemically degrading PFOA. At a current density of 20 mA/cm<sup>2</sup>, 80% PFOA degradation and 60% defluorination was achieved in 6 hours. Complete fluorine mass balance based on fluoride generated and adsorbable organic fluorine analysis was achieved confirming the PFOA degradation results. Control experiments using the new electrochemical reactor setup (BDD-iii) showed negligible PFOA losses to adsorption and other losses. The team will be testing GenX degradation using the BDD anode at 10, 20, 30, and 40 mA/cm<sup>2</sup>, and will assess fluorine mass balance of GenX degradation.
- The performance of modified membranes identified from the previous iterations as potentially able to improve water productivity and/or contaminant rejection are currently being evaluated in a cross-flow filtration system for their performance in terms of water productivity and rejection of salt and other easily measured small inorganic molecules. Cross flow filtration systems mimic hydrodynamic conditions of full-scale systems. If promising performance is confirmed, modified membranes will then be evaluated for PFAS removal.
- The team is assembling a flow-through, packed-bed system to evaluate the performance of their ionic fluorogels (IF). They will conduct rapid small-scale column tests with blank columns and commercially available IX resins under operationally-relevant conditions to establish a baseline towards evaluation of IF resins.

### **Air Emissions and Atmospheric Deposition**

- The group at UNC Chapel Hill collected filter samples weekly from September 2019 to March 2020 using high volume (HiVol) samplers at two locations close to the Chemours facility and in line with the main wind directions (SSW and NNE). Filter samples have been extracted and analyzed by LC-MS/MS for particle-phase PFAS air concentrations. Twenty-four out of 34 targeted PFAS were detected with concentrations mostly <1 pg/m<sup>3</sup>, including emerging and legacy PFAS.
- A sensitive GC/MS method has been established for gas-phase PFAS analysis with low detection limit (~1 pg/μl), and an extraction method for gas-phase PFAS from PUFs is currently under development.
- Dr. Turpin and her team received an Alfred P. Sloan Foundation grant entitled “Probing the Behavior of Emerging Water Soluble Organic Compounds in Indoor Air.” This award was made possible in part due to the analytical methods developed through the PFAST Network, and the work will contribute to a better understanding of PFAS indoor exposures.
- The group at UNC Wilmington collected sea surface microlayer and seawater samples in Carolina Beach Inlet to investigate levels of PFAS and potential emission to the atmosphere and they started developing a PFAS mass spectral library using their high-resolution mass spectrometer, for non-targeted analysis of PFAS in wet and dry deposition samples.

- The team had a paper accepted for publication in the journal *Chemosphere*. The title is “Isomers of Emerging Per- and Polyfluoroalkyl Substances in Water and Sediment from the Cape Fear River, North Carolina, USA,” and the contributing authors are: Brittany Saleeby, Megumi S. Shimizu, Rachel Mott, Rosa Sanchez Garcia, G. Brooks Avery, Robert J. Kieber, Ralph N. Mead, and Stephen A. Skrabal.
- Three additional manuscripts have been prepared for submission to the scientific peer-reviewed journals *Environmental Science & Technology* and *ES&T Letters*, and an abstract was submitted for the American Geophysical Union Fall Meeting (Dec. 1-17, 2020): “Atmospheric flux of legacy and emerging Per- and polyfluoroalkyl substances (PFAS) through wet and dry deposition at Wilmington North Carolina”. The contributing authors are: Megumi S. Shimizu, Rachael Mott, Ariel Potter, Jennifer Harfmann, G. Brooks Avery, Robert J. Kieber, Steve Skrabal, Ralph N. Mead, Joan D. Willey, Barbara Turpin, Jiaqi Zhou, and Karsten Baumann.
- Two posters were presented at the International Society of Exposure Science 30th Annual Virtual Meeting, Sept. 20-24, 2020:
  - J. Zhou, K. Baumann, N. Chang, G. Morrison, W. Bodnar, Z. Zhang, J. M. Atkin, J. D. Surratt, B. J. Turpin. “Per- and polyfluoroalkyl substances (PFASs) in fine particulate matter (PM<sub>2.0</sub>) during floor waxing”.
  - J. Zhou, K. Baumann, R. Mead, S. Skrabal, R. J. Kieber, G.B Avery, M Shimizu, J. C. DeWitt, M. Sun, W. Bodnar, Z. Zhang, L. B. Collins, J. D. Surratt, B. J. Turpin. “Per- and Polyfluoroalkyl Substances (PFASs) in fine particulate matter (PM<sub>2.5</sub>) in North Carolina”.
- Jiaqi Zhou and Karsten Baumann presented “Air Concentrations of Per- and Polyfluoroalkyl Substances (PFASs) in North Carolina” at the PFAST Network Monthly Stakeholders Advisory Committee Meeting in July, 2020.

#### **Other Applied Research Opportunities:**

##### ***Novel PFAS Inputs into the environment: landfill leachates and wastewater treatment:***

- Despite the challenges of the pandemic, the Barlaz group was able to resume work in the laboratory at NC State in early June. Unfortunately, they had been processing samples at the US EPA lab in RTP, and that lab only opened to EPA employees in September. As such, the team has been making arrangements to process samples at NC State using two instruments; an extraction unit and an evaporation unit. As of September 23rd, the team was still waiting for the NC State analytical lab (METRIC) to confirm that the extraction unit is PFAS free. METRIC experienced analytical issues and that resulted in about a 3-week delay, however they expect clearance to use the extraction soon. The evaporation unit was not functioning, so the team arranged to borrow a unit from the EPA in late September. The borrowed unit is ready for use as soon as the team gets clearance to process samples in the evaporation unit.
- Mort Barlaz presented “PFAS in leachate discharged to Publicly Owned Treatment Works or surface water from municipal landfills” at the PFAST Network Monthly Stakeholders Advisory Committee Meeting in August, 2020.

***Health effects following exposure: mouse model of immunotoxicity:***

- The DeWitt lab at East Carolina University completed four experiments dosing mice with PFMOAA, PFMOPrA, PFMOBA, and Nafion Byproduct 2 (BP2), in November 2018, March 2019, May 2019, and September 2019, respectively. These are four of the PFAS found in high concentrations in the Cape Fear River in 2016. Data Analyses for all four studies is nearing completion. Results for PFMOAA, PFMOPrA, and PFMOBA will be combined into one manuscript which Dr. Woodlief is finalizing pending receipt of serum concentration results.
- The group ran a repeat study with Nafion BP2 to confirm their initial results (data collected right before the university closed labs for the pandemic) and are working on a manuscript to report their findings regarding immunosuppressant activity. They also just completed a repeat study with PFMOAA at higher doses and will write up those results this winter. Due to the need to repeat studies for Nafion BP2 and PFMOAA, they were unable to evaluate PFHxA or a mixture of Nafion BP2 and PFMOAA with these funds. However, Dr. DeWitt and her team received an internal award from the Brody Brothers Foundation and will run the mixtures study with those funds in the spring of 2021.
- Dr. DeWitt has given four talks this summer/fall that included data from PFAST Network projects, including at the American Chemical Society, Climate Action NC, and the Air and Waste Management Association.
- Dr. Woodlief and Master's student Emma Tobin presented "poster pitches" at the North Carolina Society of Toxicology regional chapter meeting in September.



# APPENDIX I

## LEGISLATIVE LANGUAGE PASSED BY THE NORTH CAROLINA GENERAL ASSEMBLY

*(Session Law 2018-5, Section 13.1 (f) through (l), effective June 12, 2018)*

### FUNDING TO ADDRESS PER- AND POLY-FLUOROALKYL SUBSTANCES, INCLUDING GENX/USE OF EXPERTISE AND TECHNOLOGY AVAILABLE IN INSTITUTIONS OF HIGHER EDUCATION LOCATED WITHIN THE STATE

**SECTION 13.1.(f)** The General Assembly finds that (i) per- and poly-fluoroalkyl substances (PFAS), including the chemical known as "GenX" (CAS registry number 62037-80-3 or 13252-13-6), are present in multiple watersheds in the State, and impair drinking water and (ii) these contaminants have been discovered largely through academic research not through systematic water quality monitoring programs operated by the Department of Environmental Quality or other State or federal agencies. The General Assembly finds that the profound, extensive, and nationally recognized faculty expertise, technology, and instrumentation existing within the Universities of North Carolina at Chapel Hill and Wilmington, North Carolina State University, North Carolina A&T State University, Duke University, and other public and private institutions of higher education located throughout the State should be maximally utilized to address the occurrence of PFAS, including GenX, in drinking waterresources.

**SECTION 13.1.(g)** The North Carolina Policy Collaboratory at the University of North Carolina at Chapel Hill (Collaboratory) shall identify faculty expertise, technology, and instrumentation, including mass spectrometers, located within institutions of higher education in the State, including the Universities of North Carolina at Chapel Hill and Wilmington, North Carolina State University, North Carolina A&T State University, Duke University, and other public and private institutions, and coordinate these faculty and resources to conduct nontargeted analysis for PFAS, including GenX, at all public water supply surface water intakes and one public water supply well selected by each municipal water system that operates groundwater wells for public drinking water supplies as identified by the Department of Environmental Quality, to establish a water quality baseline for all sampling sites. The Collaboratory, in consultation with the participating institutions of higher education, shall establish a protocol for the baseline testing required by this subsection, as well as a protocol for periodic retesting of the municipal intakes and additional public water supply wells. No later than December 1, 2019, Collaboratory shall report the results of such sampling by identifying chemical families detected at each intake to the Environmental Review Commission, the Department of Environmental Quality, the Department of Health and Human Services, and the United States Environmental Protection Agency.

**SECTION 13.1.(h)** Beginning October 1, 2018, the Collaboratory shall report no less than quarterly to the Environmental Review Commission, the Department of Environmental Quality, and the Department of Health and Human Services on all activities conducted pursuant to this section, including any findings and recommendations for any steps the Department of Environmental Quality, the Department of Health and Human Services, the General Assembly, or any other unit of government should take in order to address the impacts of PFAS, including GenX, on surface water and groundwater quality, as well as air quality in the State.

**SECTION 13.1.(i)** Five million thirteen thousand dollars (\$5,013,000) of the funds appropriated in this act for the 2018-2019 fiscal year to the Board of Governors of The University of North Carolina shall be allocated to the Collaboratory to manage and implement the requirements of this section, which shall include distribution to the Collaboratory and participating institutions of higher education (i) to cover costs incurred as a result of activities conducted pursuant to this section, (ii) for acquisition or modification of essential scientific instruments, or (iii) for payments of costs for sample collection and analysis, training or hiring of research staff and other personnel, method development activities, and data management, including dissemination of relevant data to stakeholders. No overhead shall be taken from these funds from the participating institutions that receive any portion of these funds. Funds appropriated by this section shall not revert but shall remain available for nonrecurring expenses.

**SECTION 13.1.(j)** The Collaboratory should pursue relevant public and private funding opportunities that may be available to address the impacts of PFAS, including GenX, on surface water and groundwater quality, as well as air quality, in order to leverage funds appropriated by this section, or any other funds provided to the Collaboratory, including the Challenge Grant authorized in Section 27.5 of S.L. 2016-94, as amended by Section 10.4(a) of S.L. 2017-57.

**SECTION 13.1.(k)** In the event that the United States Environmental Protection Agency no longer provides access to its analytical instrumentation at no cost to the State for water quality sampling analysis related to per- and poly-fluoroalkyl substances (PFAS), including the chemical known as "GenX" (CAS registry number 62037-80-3 or 13252-13-6), or if the Department of Environmental Quality determines that such analysis is not being performed in a sufficiently timely manner, the Collaboratory shall coordinate such analysis in the most cost-effective manner using relevant faculty expertise, technology, and instrumentation, including mass spectrometers, existing throughout institutions of higher education located throughout the State, until such time as the Department of Environmental Quality is able to perform such analysis with instrumentation acquired pursuant to subsection (q) of this section. The Collaboratory, in consultation with the Department and relevant experts across institutions of higher education in the State, including the Universities of North Carolina at Chapel Hill and Wilmington, North Carolina State University, North Carolina A&T State University, Duke University, and other public and private institutions, shall establish a protocol for delivery of such samples taken by the Department to the entity designated to perform analysis of the samples, chain of custody protocols, and other matters to ensure proper handling and processing of the samples, which protocols shall be subject to approval by the United States Environmental Protection Agency, if such approval is required pursuant to authority delegated from the United States Environmental Protection Agency to the Department to administer federal environmental law.

**SECTION 13.1.(l)** The Collaboratory shall identify faculty expertise within institutions of higher education in the State, including the Universities of North Carolina at Chapel Hill and Wilmington, North Carolina State University, North Carolina A&T State University, Duke University, and other public and private institutions, and use technology and instrumentation existing throughout the institutions to conduct the following research (i) develop quantitative models to predict which private wells are most at risk of contamination from the discharge of PFAS, including GenX; (ii) test the performance of relevant technologies in removing such compounds; and (iii) study the air emissions and atmospheric deposition of PFAS, including GenX. In addition, Collaboratory may, using relevant faculty expertise, technology, and instrumentation existing throughout institutions identified, evaluate other research opportunities and conduct such research for improved water quality sampling and analyses techniques, data interpretation, and potential mitigation measures that may be necessary, with respect to the discharge of PFAS, including GenX.

# APPENDIX II

## LEGISLATIVE LANGUAGE PASSED BY THE NORTH CAROLINA GENERAL ASSEMBLY

*(Session Law 2019-241, Section 7.(a) through 7.(d), effective Nov. 6, 2019)*

### GENERAL ASSEMBLY OF NORTH CAROLINA SESSION 2019

#### SESSION LAW 2019-241 SENATE BILL 433

AN ACT TO MAKE VARIOUS CHANGES TO THE STATUTES GOVERNING THE DEPARTMENT OF NATURAL AND CULTURAL RESOURCES AND TO REMOVE CERTAIN LANDS FROM THE STATE NATURE AND HISTORIC PRESERVE, AS RECOMMENDED BY THE DEPARTMENT; **TO AMEND CERTAIN REPORTS OF THE NORTH CAROLINA POLICY COLLABORATORY TO THE GENERAL ASSEMBLY**; TO CLARIFY CERTAIN APPROPRIATIONS IN THE 2018 HURRICANE FLORENCE DISASTER RECOVERY ACT; TO CORRECT AN EFFECTIVE DATE; TO REPEAL AND REPLACE AN ACT PROVIDING FOR EMERGENCY OPERATING FUNDS FOR UTILITIES; TO ADJUST FOR INFLATION THE THRESHOLD FOR DEPARTMENT OF ADMINISTRATION APPROVAL OF STATE LEASES; AND TO CLARIFY AND AMEND THE SEPTIC TANK SITE SUITABILITY DETERMINATION PROCESS.

The General Assembly of North Carolina enacts:

#### **COLLABORATORY/FIREFIGHTING FOAM**

**SECTION 7.(a)** The North Carolina Policy Collaboratory at the University of North Carolina at Chapel Hill (Collaboratory) shall create an inventory of aqueous film-forming foam (AFFF) used or stored by fire departments in North Carolina operated, managed, or overseen by units of local government, including those located at or serving airports. This inventory shall include, at a minimum, the following:

- (1) The name and address of each fire department that owns or otherwise has on the premises of a fire station a firefighting vehicle that carries AFFF or a storage tank or other vessel for AFFF.
- (2) The volume, trade name, and CAS number of AFFF used by each department in 2018 for fighting fires or firefighter training.
- (3) The number of firefighting vehicles carrying AFFF and the volume of AFFF carried by each vehicle.
- (4) Each fire department's annual cost of acquiring AFFF and last known purchases of AFFF.
- (5) The volume, trade name, and CAS number of AFFF stored by each fire department or unit of local government for firefighting use and the portion of these AFFFs that are no longer utilized and could be removed from inventory for disposal.
- (6) Other data deemed relevant by the Collaboratory to establish a statewide inventory of AFFF used for fighting fires or firefighter training.

The Office of the State Fire Marshal of the Department of Insurance and all units of local government shall provide any assistance requested by the Collaboratory to acquire and compile the data required by this section.

**SECTION 7.(b)** The North Carolina Policy Collaboratory at the University of North Carolina at Chapel Hill (Collaboratory) shall develop a proposal for identifying and collecting AFFF that is expired or no longer needed or wanted by each fire department in North Carolina operated, managed, or overseen by units of local government, including those located at or serving airports. This proposal should include recommendations on which State agency or agencies could oversee such a collection effort and cost estimates on this collection, stockpiling, and disposal. The Department of Insurance Office of the State Fire Marshal, the Department of Environmental Quality, the Department of Health and Human Services, and the Department of Public Safety shall provide any assistance requested by the Collaboratory to acquire and compile the data required by this section.

**SECTION 7.(c)** The Collaboratory shall submit an interim report with the results of the studies required by subsections (a) and (b) of this section no later than April 1, 2020, and a final report no later than October 15, 2020, to the Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources and the Environmental Review Commission.

**SECTION 7.(d)** Section 13.1(g) of S.L. 2018-5 reads as rewritten:

"**SECTION 13.1.(g)** The North Carolina Policy Collaboratory at the University of North Carolina at Chapel Hill (Collaboratory) shall identify faculty expertise, technology, and instrumentation, including mass spectrometers, located within institutions of higher education in the State, including the Universities of North Carolina at Chapel Hill and Wilmington, North Carolina State University, North Carolina A&T State University, Duke University, and other public and private institutions, and coordinate these faculty and resources to conduct nontargeted analysis for PFAS, including GenX, at all public water supply surface water intakes and one public water supply well selected by each municipal water system that operates groundwater wells for public drinking water supplies as identified by the Department of Environmental Quality, to establish a water quality baseline for all sampling sites. The Collaboratory, in consultation with the participating institutions of higher education, shall establish a protocol for the baseline testing required by this subsection, as well as a protocol for periodic retesting of the municipal intakes and additional public water supply wells. No later than ~~December 1, 2019~~, October 15, 2020, the Collaboratory shall report the results of such sampling by identifying chemical families detected at each intake to the Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources, the Environmental Review Commission, the Department of Environmental Quality, the Department of Health and Human Services, and the United States Environmental Protection Agency.

# APPENDIX III

## LEGISLATIVE LANGUAGE PASSED BY THE NORTH CAROLINA GENERAL ASSEMBLY

*(Session Law 2020-74, Section 8.(a), effective July 1, 2020)*

### GENERAL ASSEMBLY OF NORTH CAROLINA SESSION 2019

#### SESSION LAW 2020-74 HOUSE BILL 308

AN ACT TO PROVIDE FURTHER REGULATORY RELIEF TO THE CITIZENS OF NORTH CAROLINA.

The General Assembly of North Carolina enacts:

#### **COLLABORATORY REPORTING CHANGES**

**SECTION 8.(a)** Section 13.1(g) of S.L. 2018-5, as amended by Section 7(d) of S.L. 2019-241, reads as rewritten:

"SECTION 13.1.(g) The North Carolina Policy Collaboratory at the University of North Carolina at Chapel Hill (Collaboratory) shall identify faculty expertise, technology, and instrumentation, including mass spectrometers, located within institutions of higher education in the State, including the Universities of North Carolina at Chapel Hill and Wilmington, North Carolina State University, North Carolina A&T State University, Duke University, and other public and private institutions, and coordinate these faculty and resources to conduct nontargeted analysis for PFAS, including GenX, at all public water supply surface water intakes and one public water supply well selected by each municipal water system that operates groundwater wells for public drinking water supplies as identified by the Department of Environmental Quality, to establish a water quality baseline for all sampling sites. The Collaboratory, in consultation with the participating institutions of higher education, shall establish a protocol for the baseline testing required by this subsection, as well as a protocol for periodic retesting of the municipal intakes and additional public water supply wells. No later than ~~October 15, 2020~~, April 15, 2021, the Collaboratory shall report the results of such sampling by identifying chemical families detected at each intake to the Joint Legislative Oversight Committee on Agriculture and Natural and Economic Resources, the Environmental Review Commission, the Department of Environmental Quality, the Department of Health and Human Services, and the United States Environmental Protection Agency."