Chemours Update

North Carolina Department of Environmental Quality

August 13, 2020

Emerging Compounds: GenX and PFAS

- **GenX = HFPO-DA or C3 Dimer Acid = $C_6HF_{11}O_3$**
- **GenX** is a trade name for a manmade, unregulated chemical used in manufacturing nonstick coatings and for other purposes.
  - Is an *emerging compound* in a family of chemicals known as per- and poly- fluorinated alkyl substances (PFAS)
  - Produced and emitted by one company in NC – Chemours (formerly Dupont)
  - Has been discharged into the Cape Fear River for 30+ years.
  - Until the past couple of years, labs couldn't measure it.

Emerging compounds:

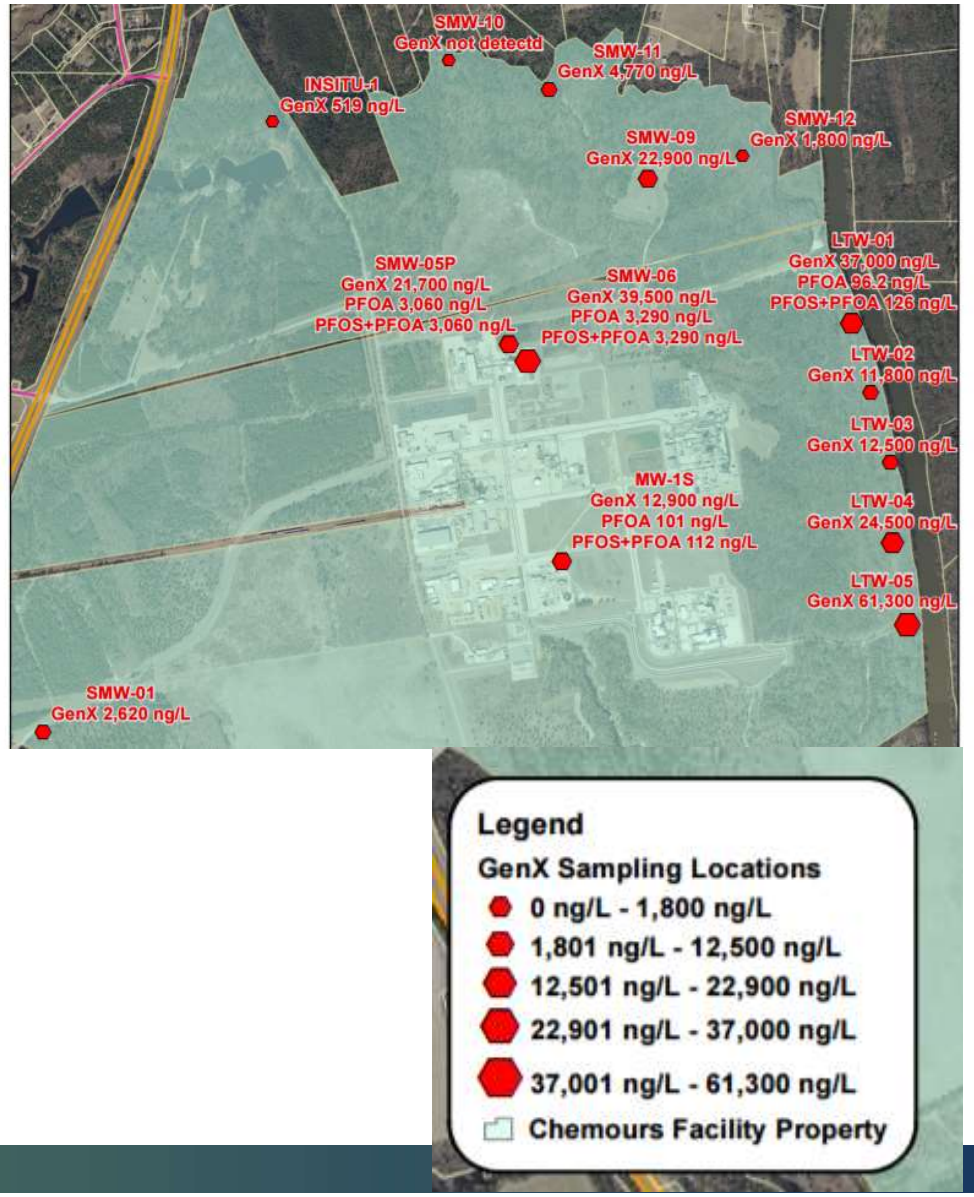
- No (or limited) specific limits in environmental regulations.
- Little is known about how they behave in the environment.
- Little known about their effects on human health and environment.
- Presents significant challenge for regulatory agencies.

Emerging Compounds – GenX Case History

- **Early-mid 2017:** Focus on surface water issues
- **Mid 2017:** Groundwater issues discovered
- **Mid-late 2017:** Air emission contributions
- **Through 2018:** Testing of emissions and drinking wells
- **Feb. 2019:** Consent Order signed
- **Dec. 2019:** Thermal Oxidizer
- **2019-2020:** Ongoing private well testing
- **Currently:** Focus on the residual PFAS

Groundwater Testing

- Found high levels of PFAS compounds in onsite monitoring wells
- In 2017, NC DHHS established a GenX drinking water health goal of 140 ng/L (ppt)
- DEQ tested wells on properties adjacent to Chemours first and found high levels
- Asked Chemours to test additional wells in the area to determine extent of contamination



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Chemours – Consent Order Feb. 2019

Addressing contamination

- NC DEQ signed a Consent Order with Chemours Feb. 26, 2019: https://deq.nc.gov/news/hot-topics/genx-investigation
- Consent Order included:
  - Requirements to reduce air emissions and to achieve maximum reductions of all remaining PFAS contributions to the Cape Fear River on an accelerated basis, including groundwater.
  - Notify and coordinate with downstream public water utilities when potential discharge of GenX compounds into the Cape Fear River above 140 ppt.
  - Sample wells and provide drinking water
  - Additional penalties will apply if Chemours fails to meet the conditions and deadlines established in the order.

Chemours – Consent Order Feb. 2019

Addressing contamination

- Control technology improvements and emissions reduction milestones
- Determining which PFAS at what amounts are in wastewater and stormwater at the facility (bimonthly for 2 years; then may decrease frequency)
  - Determining which PFAS at what amounts are in river sediment and downstream raw water intakes for drinking water plants
- Fund method development to test for Total Organic Fluorine in air emissions and wastewater
- Drinking Water Compliance Plan (April 2019)
- Additional reporting

Chemours – Consent Order Feb. 2019

Addressing contamination

- Plans that are currently under review:
  - **Accelerated Reduction of PFAS to the Cape Fear River (Plan received Aug 2019)**
    - Focus on reductions to be achieved in 2 years; 5 years for additional reductions
  - **On- and Off-site Assessment of Contamination** (Revised report received Oct. 2019; response from DEQ soon)
  - **Corrective Action Plan (CAP)** (Plan received Dec. 31, 2019; under review)
    - Includes groundwater remediation and other PFAS contamination on- and off-site.
  - **Toxicity Studies on Potential Health Risks** (Received March 25, 2019)
    - Contract labs to assess potential human and environmental health effects.

DEQ's main concerns are:

- More data may be requested to fully understand all contamination on- and off-site.
- The best options for addressing the remaining PFAS are still under review.
- More information on potential effects to receptors such as humans, animals and plants may be requested.

Chemours Corrective Action Plan

Submitted 12/31/2019

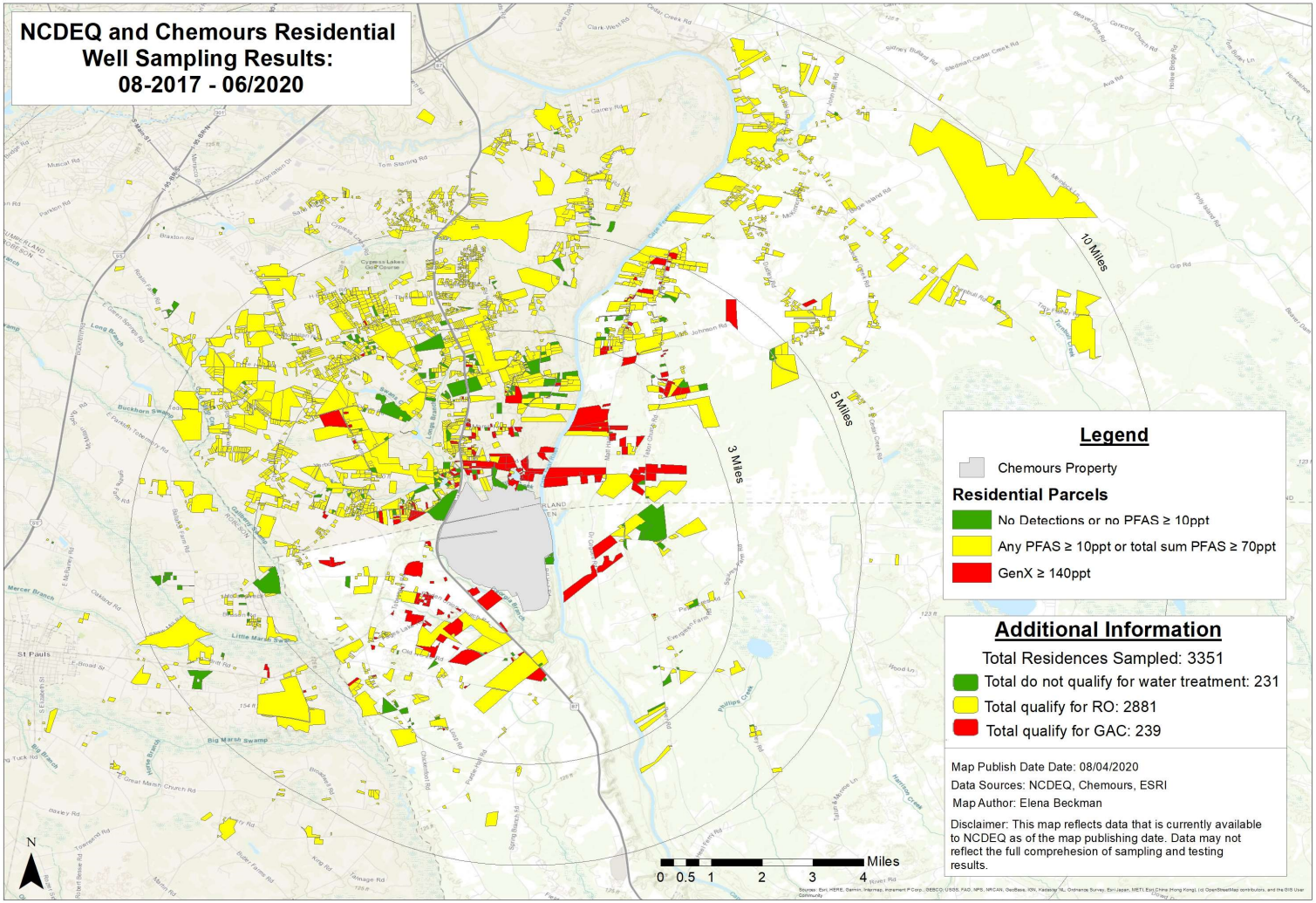
- Chemours Corrective Action Plan
  - Currently under review by DEQ.
  - Public comment period for CAP through April 6, 2020.
  - More than 1,000 comments submitted during the public comment process.

Sample Wells and Provide Drinking Water:

- Sample drinking water wells
  - ¼ mile beyond the closest well that had PFAS levels above 10 parts per trillion
  - Annually retest wells that were previously sampled
  - Bottled water in 3 days if exceed a Consent Order limit

- For those with GenX above 140 parts per trillion or applicable health advisory:
  - Provide permanent drinking water supply within 9 months
  - Public waterline connection or whole building GAC filtration system

- For those with combined PFAS levels above 70 parts per trillion or any individual PFAS compound above 10 parts per trillion:
  - Provide, install and maintain up to three under-sink reverse osmosis (RO) systems per residence
  - Provide RO systems within 6 months of Consent Order or receiving test results



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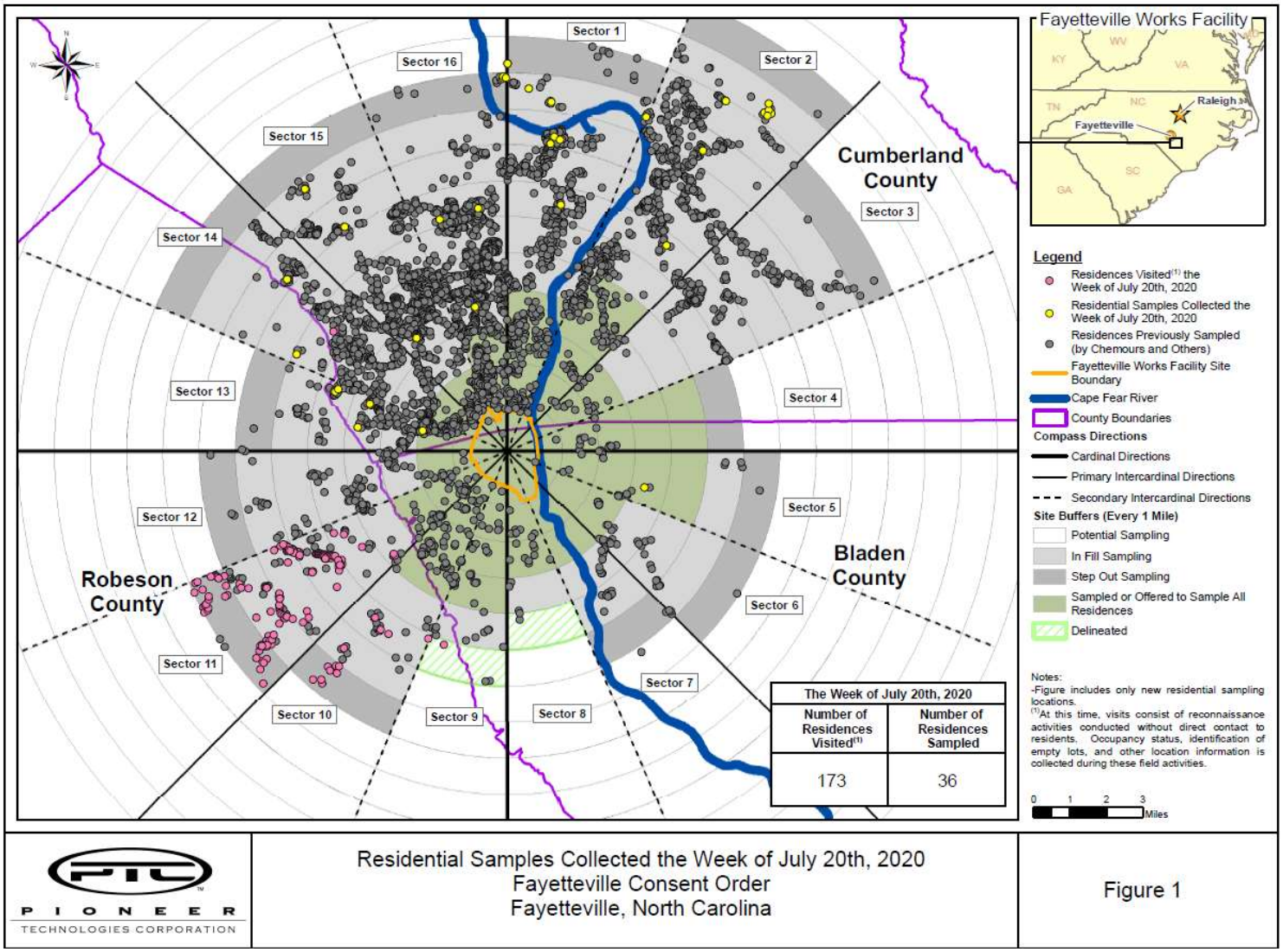
GenX Private Well Summary Data

Private well PFAS data is summarized below. This includes DEQ-collected data through June 2020 and Chemours-collected data through March 2020.

Private Well Water Testing Summary	Combined Well Data
Distance from Chemours	12+ miles
Well Collection Dates	Up to June 2020
Number of Wells Tested (by land parcel)	3,351
Number of Exceedances of Provisional Health Goal (Gen X, 140 ng/L)[a]	231
Number of Consent Order Exceedances of 10 ng/L for single PFAS or 70 ng/L total PFAS	2,881
Results all PFAS below 10 ng/L	239
Maximum Detected GenX Concentration	4,000 ng/L (ppt)

a. The NC DHHS Provisional Drinking Water Health Goal for GenX is 140 ng/L (July 2017)



Consent Order required Chemours to develop a plan for well testing.

They have now completed the Well Sampling Step Out plan but continue to sample wells to determine the extent of contamination and to identify all impacted wells within that area.

LL1

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Slide 12

LL1 I didn't think they have completed the step-out plan. As long as they are continuing to go out to sample, isn't that the step-out plan?

Leonard, Laura, 7/30/2020

Sampling Your Well

- To request well testing, call Chemours at **910-678-1101**
- Parsons Environment and Infrastructure – known as “Parsons” – is the independent water testing contractor for Chemours.
  - If you do not respond, you will not be able to have your well sampled.
  - If you refuse sampling by Parsons, you will not be eligible for replacement water.
- Public water supply option for those with GenX > 140 ppt where feasible
  - System expansion still under review and analysis west of the river in Cumberland County

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Changes due to COVID-19

Private well sampling was suspended in March of 2020 following public health guidance to reduce the spread of COVID-19.

Private well sampling resumed in July.

- Most wells can be sampled without entering a residence.
- Personal protective equipment and social distancing guidelines are being used.

Installation of water treatment systems has resumed.

- Residents must give permission for workers to enter their homes.
- Personal protective equipment and social distancing guidelines are being used.

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DEQ GAC Filter Pilot Study

Results of whole house GAC (Granular Activated Carbon) filter Study

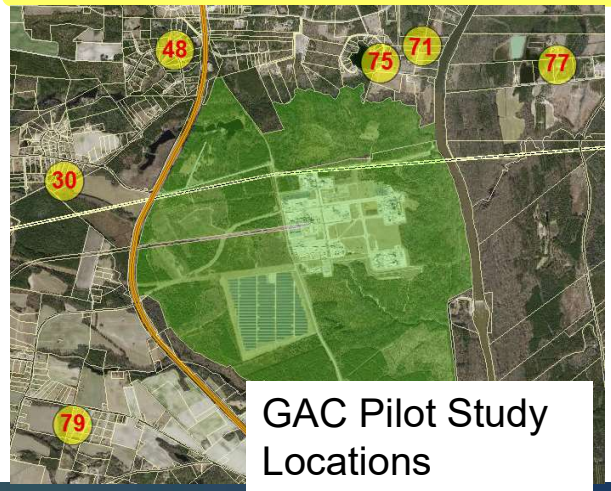
Pilot study goals:

- Assess for residential wells with GenX >/=140 ppt.
- Are they effective at chemical removal?
- What maintenance and monitoring is required?

Basic study information:

- Six locations
- Avg. GenX in untreated water = 178 to 1,719 ppt
- Avg. water usage = 571 to 2,438 gallons/week
- Analyzing for GenX and 32 other PFAS

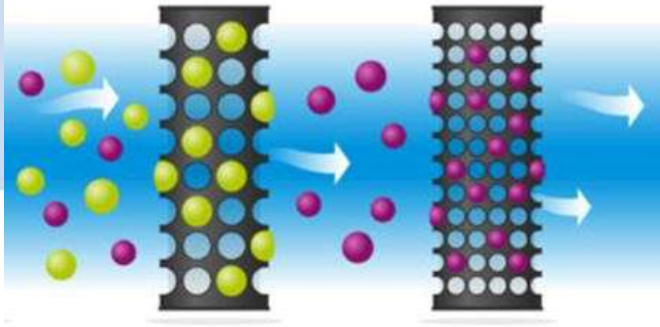
This GAC system may perform differently from other GAC systems available on the market.



GAC Pilot Study Locations

GAC Filter Pilot Study

Results of whole house GAC filter Study



Results

- These GAC systems can remove PFAS from drinking water at the levels seen in the Chemours area if properly maintained.

Study data: https://deq.nc.gov/news/key-issues/genx-investigation/groundwater

GAC maintenance is key.

- GAC systems must be maintained to be effective
- Consent Order requires quarterly testing *between* the filters to check for breakthrough
- Consent Order requires that filters must be changed when any PFAS reaches 100 ppt *between* the filters
- If filters are not changed regularly, they can become a source and *increase* levels of PFAS in the water.

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DEQ RO Filter Pilot Study

Results of under-sink Reverse Osmosis (RO) filter study

Pilot study goals:

- Are they effective at chemical removal?
- Assess high and low concentrations:
  - Low concentrations were eligible for RO (GenX=10-140ppt)
  - High concentrations were eligible for GAC (GenX>140ppt)

Basic study information

Four locations:

- 3 low concentration homes:
  - Avg. Total PFAS in untreated well water = 101-155 ppt
  - Up to 7 PFAS detected
- 1 high concentration home:
  - Avg. Total PFAS in untreated well water = 3,359 ppt
  - Up to 18 PFAS detected
- Analyzing for GenX and 44 other PFAS (2 more PFAS added mid-September)

This RO system may perform differently from other RO systems available on the market.

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RO Filter Pilot Study

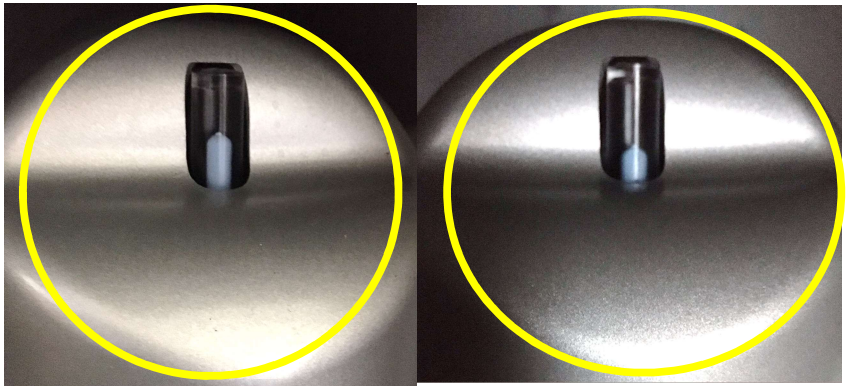
Results of under-sink RO (Reverse Osmosis) filter Study

Results

- These RO Systems are effective at removing PFAS identified to date in the Chemours area.

RO Maintenance

- Systems generate up to 50 gallons per day.
- Indicator on system is visible; it drops as filter nears end of life.
- Filters stop working when filter is depleted and require maintenance.



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Water Treatment System Decision

For impacted residences

Residents with impacted wells:

- Will receive letters with directions on how to choose a system.
- Will be asked to make a decision about one year from receiving their well results.
- May decline a water treatment system.

After the one-year deadline, residents will no longer be eligible for a filtration system provided by Chemours. LL3

The first residents tested will need to make a decision soon.

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LL3 Double-check this language.
Leonard, Laura, 7/30/2020

Bottled Water Questions

- DEQ has fielded many questions about bottled water supplies.
- Chemours also should be contacted at (910) 678-1101 for bottled water questions.
- Chemours is proposing a new bottled water voucher system that may help some residents with their requests for different water volume sizes.
- The voucher card would allow residents to purchase the type of water and size of container they prefer with pre-paid money voucher cards provided by Chemours.

Recent Notice of Violation (Material from Old Outfall 002)

- DEQ issued Chemours a Notice of Violation for improper disposal of yard waste (land clearing debris material) on June 18, 2020.
- The receiving facility for the material is an unlined landfill.
- The material has been removed by Chemours from the facility, and Chemours has submitted a response to the DEQ Notice of Violation.
- DEQ is currently reviewing Chemours' response and additional information to determine necessary next steps.

Cape Fear River Sediment Sampling

- Chemours has recently completed sediment sampling of the Cape Fear River as required under the Consent Order.
- DEQ obtained split samples from some of the sample locations to submit to a private lab for analysis.
- Chemours will submit a summary of the data regarding PFAS levels in river sediment when all results are complete.

DEQ Community Updates Info for Residents' web page Community Mailing

Community Update

February 2020

This community update includes the latest information that may be of interest to residents in the Cape Fear River Region and the communities near the Fayetteville Works facility.

The N.C. Department of Environmental Quality (DEQ) entered into a Consent Order with Chemours and Cape Fear River Watch in February 2019. The order requires Chemours to address all sources of PFAS at the facility to prevent further impacts to air, soil, groundwater and surface waters.

The full Consent Order and history of the GenX investigation can be found online at https://bit.ly/2Z7JHVA.

Air Emissions

Thermal Oxidizer Update

Division of Air Quality staff observed the performance testing of the thermal oxidizer at Chemours. Results will determine the effectiveness of the control equipment as required under the Consent Order. Chemours is required to reduce PFAS air emissions routed through the control device by 99.99 percent.

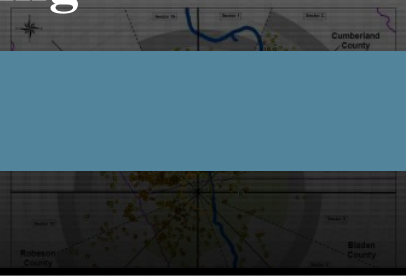
Groundwater

Request Sampling of a Private Drinking Water Well

Per the Consent Order, Chemours is required to sample private drinking water wells in the impacted areas. **Parsons** is the third-party consultant who will be contacting you to sample your private well. To request sampling call (910) 678-1101.

Updated Well Sampling Map

Chemours sends DEQ well sampling maps weekly, which include samples collected, samples received, and status of the step-out and infill programs. To view the latest well sampling map (Feb. 10, 2020), go to: https://bit.ly/38WOxcK or click the image below.



Public Water Options

DEQ has made a feasibility determination, with input from local government representatives, for areas **west** of the Cape Fear River in Bladen County. Chemours will be providing municipal water to the 52 residences served by private wells (if the well owner elects to have municipal water) west of the Cape Fear River in Bladen County whose drinking water results are at or above 140 ppt for GenX. To view this letter, go to: https://bit.ly/31YNF4W.

Cumberland County officials recently approved $10.5 million for waterline construction in the Gray's Creek area. DEQ staff is currently reviewing the county's decision as it relates to the terms of the state's Consent Order. The addition of the proposed waterlines announced recently will require an update to the study of the feasibility of public water in the area under the terms of the Consent Order.

For areas **west** of the Cape Fear River in Cumberland County: the Public Water Feasibility Analysis is still under review. DEQ has requested feedback from representatives of Cumberland County. DEQ granted an extension to Chemours until May 25, 2020, for the company to comply with the requirements of Paragraph 19 for the affected wells in Cumberland County west of

representatives. To view this letter, go to: https://bit.ly/2LBRVlu.

Chemours will not be installing additional granular

Community Outreach

Questions?

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