



**Testing and Treatment of Private Wells for GenX – Division of Waste Management**

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*Department of Environmental Quality*



# Testing for Emerging Compounds

- Stakeholder and community engagement are key components.
- DEQ has hosted five community information sessions around Chemours' Fayetteville Works facility.
- Data needs are extensive and require collaboration from all parties.
- Resources are also a critical aspect in addressing emerging compounds.



# Emerging Compounds Resources

## State Resources

1. Division of Water Resources (DEQ)
2. Division of Waste Management (DEQ)
3. Division of Air Quality (DEQ)
4. Department of Health and Human Services



## Federal Resources

1. EPA



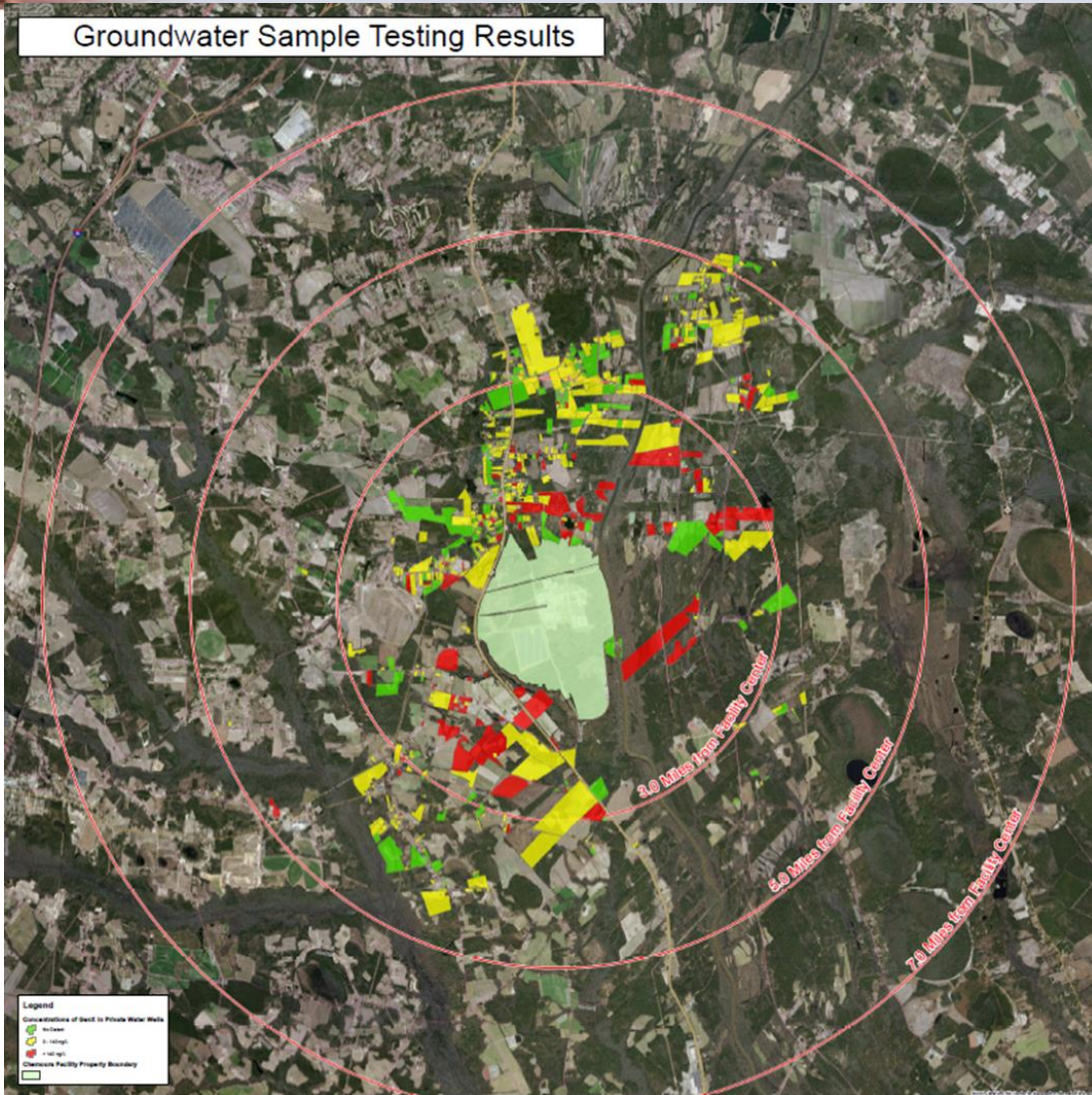
## Local Resources

1. County Health Departments
2. Boards of Commissioners





# Division of Waste Management GenX Private Well Sampling



Well Sampling Results in the Chemours area,

Approximate distances from facility boundary:

Northeast – 5.5 miles

West – 1.8 miles

Southwest – 3.9 miles

East – 2.6 miles

GenX: NC health goal = 140 ng/l

Red = > 140 ng/l

Yellow = 0-140 ng/l

Green = Non detect



# GenX Private Well Summary Data

## Combined Phase I, II, III , IV (partial) Private Well PFAS Data, also Includes Robeson Co. and DEQ-collected Data

Private Well Water GenX Summary	Combined Well Data
Distance from Chemours' border	Up to 5.5 miles
Well Collection Dates	9/6/2017 – 6/13/18
Number of Wells tested	823
Number of Exceedances of the GenX Provisional Health Goal	164
Number of Not-Detected ("ND") GenX Analyses	220
<small>a. The NC DHHS Provisional Drinking Water Health Goal for GenX is 140 ng/L (July 2017)</small>	
Number of GenX Detections Less than the Health Goal <sup>a</sup>	439
Maximum Detected GenX Concentration	4000 ng/L





# Granular Activated Carbon Pilot Study for Private Wells

- Chemours submitted to DEQ a proposal to install granular activated carbon filtration systems for residences with GenX present in the well at or above 140 ng/l.
- DEQ provided initial feedback to Chemours to include the requirement to install 5 additional filter systems for sampling.
- The final system was installed on April 20. Both DEQ and Chemours' third-party consultant are sampling the filter units. Results are posted on the DEQ website.



# Granular Activated Carbon (GAC) Pilot Study for Private Wells

- Specific type of GAC system – Other types may not perform the same.
  - Iron and sediment filters
  - System has two GAC filters
- Basic study information:
  - 6 locations
  - GenX in untreated water = 159 - 1,910 ng/L
  - Water usage = 450 to 2,500 gallons per week
  - Analyzing for GenX and 32 other PFAS compounds
- Breakthrough questions:
  - When will filter reach capacity to capture PFAS contamination?
  - Which PFAS chemicals will breakthrough first?
- Operational questions:
  - How often do iron and sediment filters need maintenance?
  - Is water pressure affected?
  - What other parts of system design should we consider?
- Study is ongoing. DEQ will hold a public information session in the fall to discuss progress.



# Additional DEQ GenX Sampling

- Two Cumberland County elementary school wells were sampled.
  - GenX levels of 5 ng/l and non-detect
- Surface water samples were collected at two recreational lakes in Bladen and Cumberland counties.
  - GenX levels of 620 and 915 ng/l
- DEQ has worked collaboratively with DHHS to address use of recreational areas.
- DEQ has also sampled an athletic field in Cumberland County that used well water onsite.





# GenX Fish Tissue Testing

## Private Lake Testing by DEQ

- DEQ sampled a private lake North of the Chemours plant on March 14
  - 2 surface water sample locations
  - 2 composite sediment sample locations
  - 2 Largemouth Bass fillet tissue composites
  - 1 Redear Sunfish fillet tissue composite
- Catfish were sampled in April
- A drinking water well onsite at the lake was sampled.
- All samples collected were analyzed using USEPA M537-modified for full PFAS Suite at GEL Labs.
- Surface water was tested for Total Organic Carbon, Dissolved Organic Carbon, pH and Total Particulates; sediment will also be tested for Total Organic Carbon and %Lipids.
- GenX was detected in the Redear Sunfish along with additional PFAS compounds.



# Next Steps

- Continued work at Department of Defense Facilities.
- Further evaluation of private well treatment systems.
- Determination of additional facility types that may have managed these compounds.
- Augmenting state resources to assist with sampling for these types of compounds.



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