



DEQ GenX Update House Select Committee on River Water Quality





Division of Water Resources



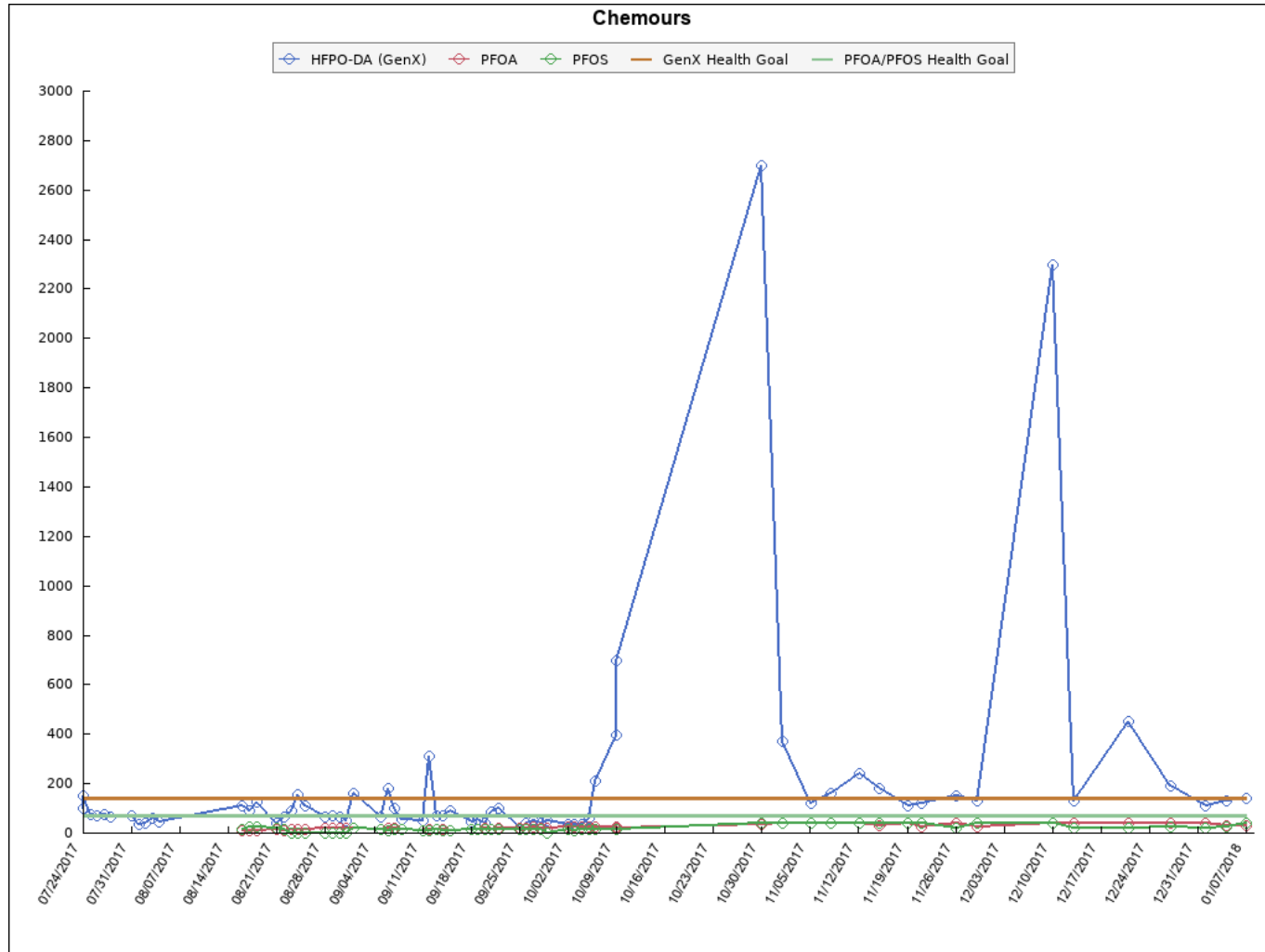
Current Sampling

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- Two composite samples weekly at Chemours wastewater outfall into the Cape Fear River: Monday - Thursday and Friday - Sunday
- Drinking water facilities downstream are sampled weekly:
 - Bladen Bluff
 - International Paper
 - NW Brunswick
 - Pender County
 - CFPU Sweeney
- Other watersheds across North Carolina
 - Began monthly monitoring in Jordan Lake watershed Jan. 2nd



Data at Chemours Outfall 002 GenX (parts per trillion)

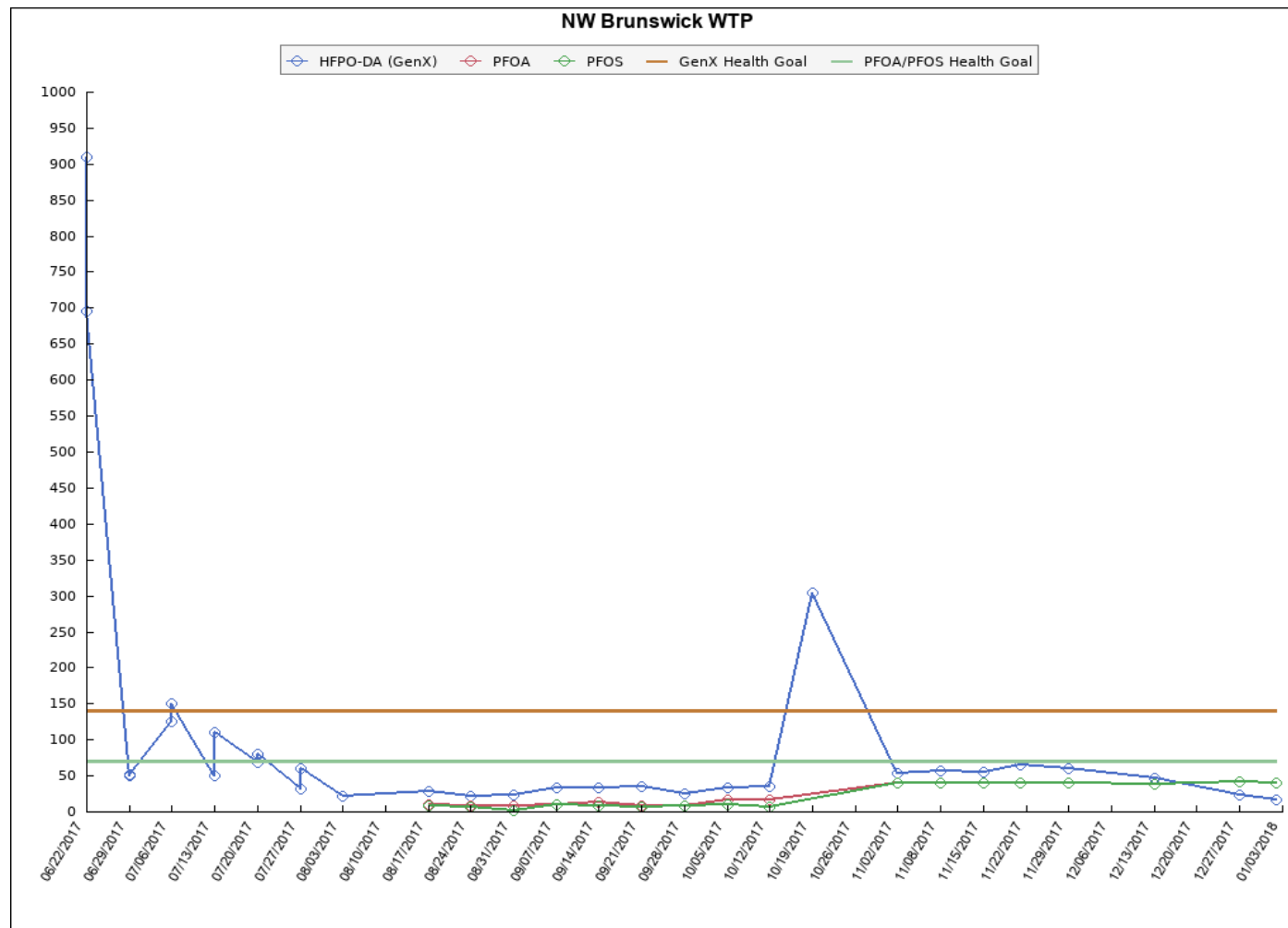


Site Inspection

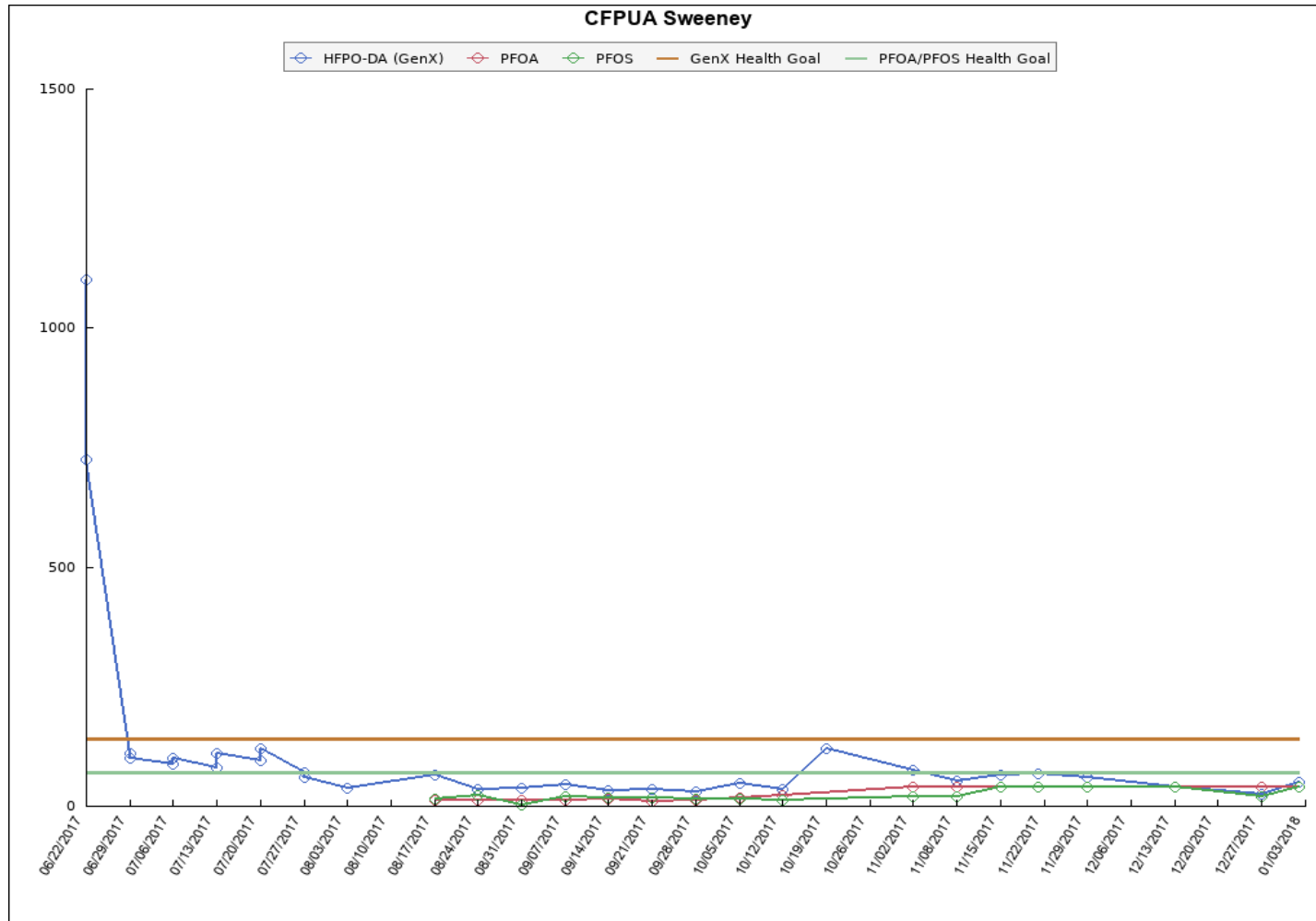


Area of Chemours plant where Oct. 6th release occurred and entered the waterway that discharges to outfall 002.

Data at Drinking Water Facilities GenX (parts per trillion)



Data at Drinking Water Facilities GenX (parts per trillion)

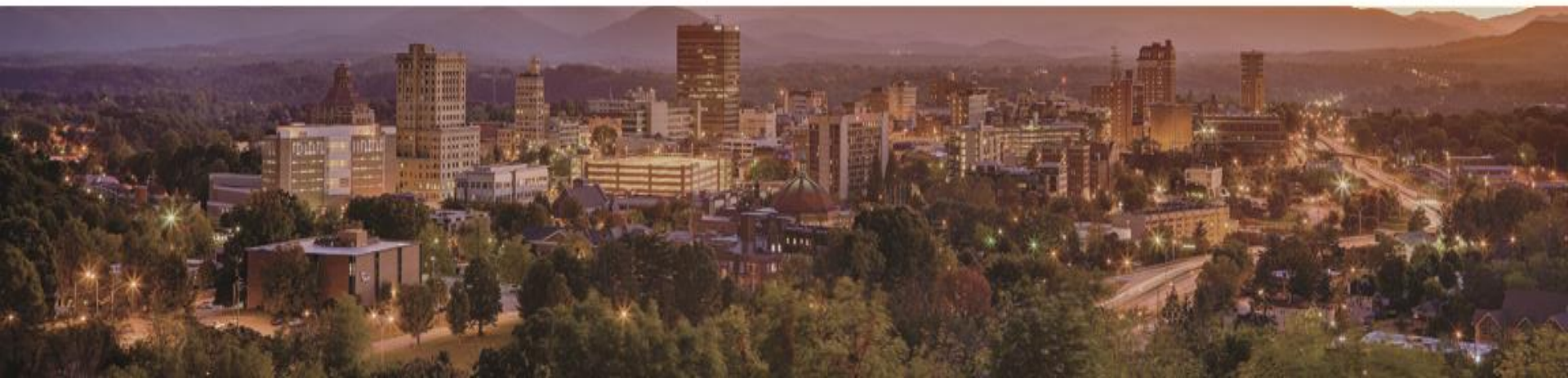


Upcoming

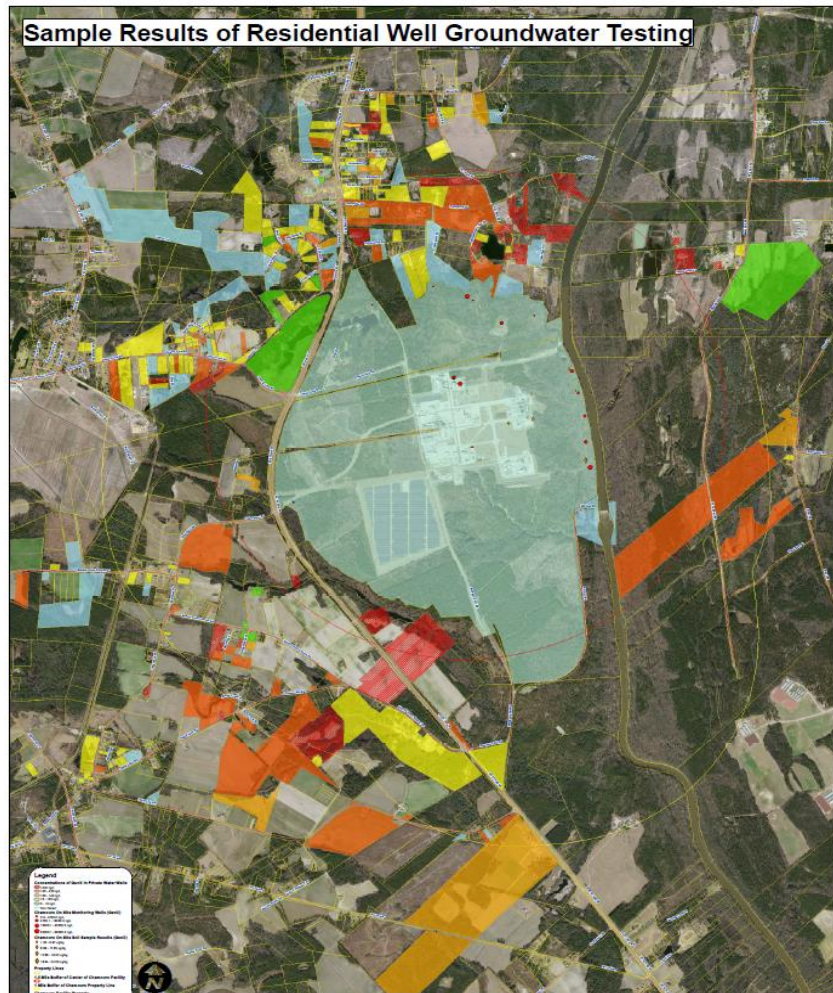
- Resources to continue monitoring in the Cape Fear River basin and ambient monitoring for fluorinated chemicals across the state.
- Chemical analysis – continue EPA Athens lab analysis for weekly monitoring. Limitation – 5 week turnaround.
- Ambient monitoring will have to be coordinated to fit into EPA Athen's schedule, due to their support needed by other states.
- Evaluate factors for potential bioaccumulation and aquatic toxicity to develop surface water and groundwater standards, including SAB review.



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Well Sampling Results in the Chemours area, Phases 1-3 (up to ~1.5 mi. from facility border)

GenX: NC health goal = 140 ppt

Red = > 420 ppt

Dark Orange = 140 - 420 ppt

Orange = 100 - 140 ppt

Yellow = 10 –100 ppt

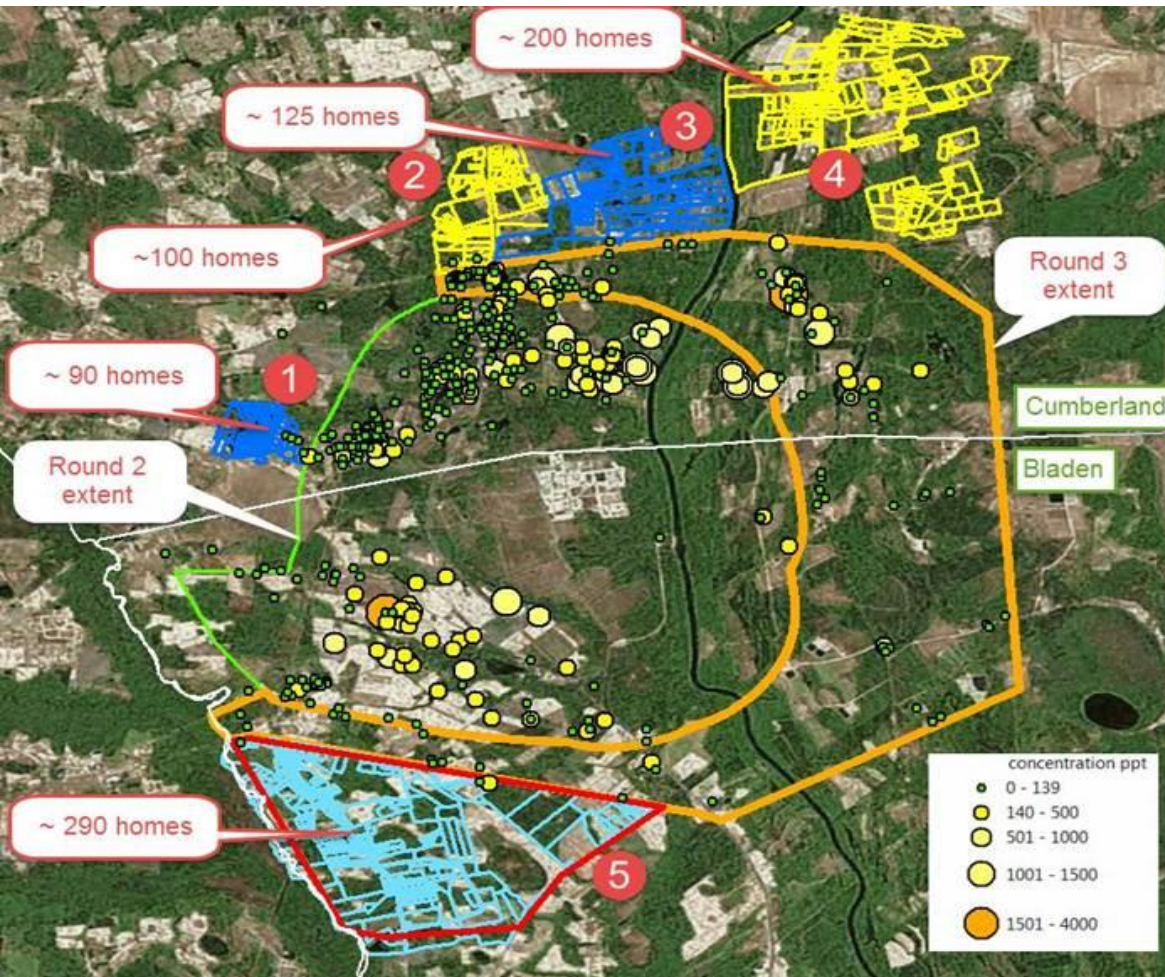
Green = 0 - 10 ppt, detected

Blue = ND (Non Detect result)

No color = not tested



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Chemours proposed
“Phase 4” sampling plan

Starts with areas in red and
yellow (2, 4 and 5)

Will move on to blue areas
depending on results

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Combined Phase I, II, III Private Well PFAS Data

Private Well Water GenX Summary	Phase I, II & III, Combined (%)
Distance from Chemours' border	Up to 1.5 miles
Well Collection Dates	9/6/2017 – 1/30/2018
Number of Wells tested	484
Number of Exceedances of the GenX Provisional Health Goal	151
Number of Not-Detected ("ND") GenX Analyses	123
Number of GenX Detections Less than the Health Goal ^a	210
Maximum Detected GenX Concentration	4000 ng/L

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



Granular Activated Carbon Point of Use Filtration Systems

- Chemours has submitted to DEQ a proposal to install granular activated carbon filtration systems for residences with Gen X present in the well at or above 140 ppt
- DEQ has provided initial feedback to Chemours to include the requirement to install 4 additional filter systems for sampling
- DEQ and Chemours' consultant would sample the systems over the next few months to determine carbon filter effectiveness



Chemours testing of a residential point of use (POU) water treatment system

- Chemours Employee POU water treatment system
- DEQ-collected 12/20/17, analyzed for expanded PFAS suite
 - A high concentration of GenX (845 ng/L) was present in the pre-filter sample that was not detected in the carbon-treated samples
 - The “post-filter, no purge” sample simulates Chemours’ sample collection practice; DEQ purges the water lines prior to sample collection
 - 16 PFAS were detected in the pre-filter sample, 1 PFAS was detected in the post-filter sample (1.08 J ng/L GenX)
 - Data summary -

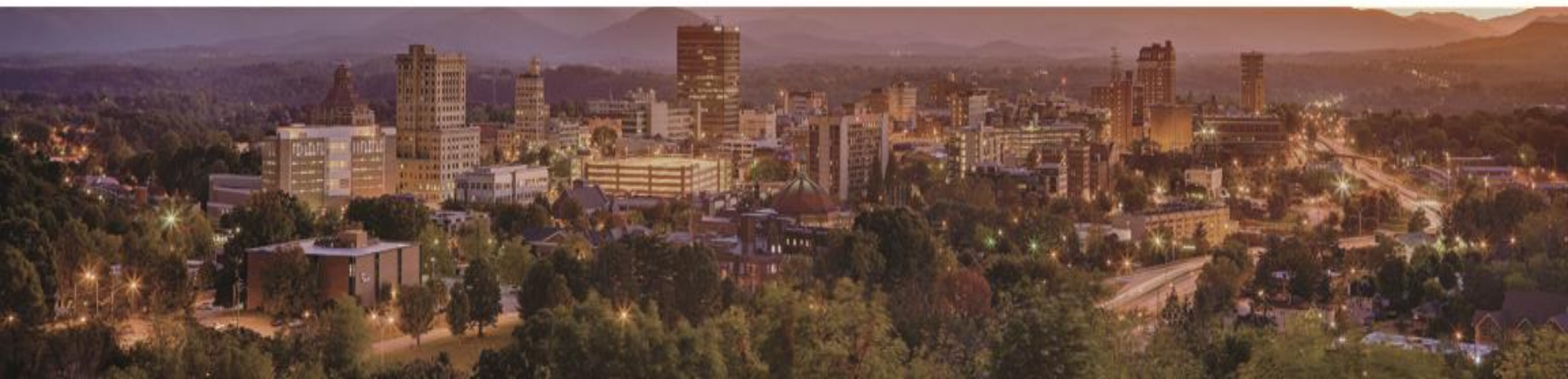
• Pre-filter:	845 ng/L GenX;	15.5 (PFOS + PFOA);	1491 ng/L Total PFAS
• Mid-filter:	1.36 J ng/L GenX;	ND (PFOS + PFOA);	1.58 ng/L Total PFAS
• Post-filter:	1.08 J ng/L GenX;	ND (PFOS + PFOA);	1.08 ng/L Total PFAS

J = estimated concentration, greater than the detection limit and less than the reporting (quantitation) limit





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Air Emissions Testing or “Stack Testing”

Capture and quantification of specific pollutants being emitted to the atmosphere from a process through the stack.

Chemours has submitted a protocol to define which sources they will test, which test method they will use and which contaminant they will target for quantification.





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Air Emissions Testing or “Stack Testing”

- Target contaminant – C₃ Dimer Acid (GenX)
- Sources to be tested:
 - Fluoromonomers, Nafion, and Polymer Processing Aid (PPA) processes
 - Test Locations - Division, VE South Scrubber and PPA stacks
- Shake-down testing – January 9 & 12
- Full scale testing – week of January 22
 - Split samples for independent assessment by EPA lab
- Results expected early March
- Additional testing – week of February 26 & beyond



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Ambient Air Quality Monitoring

- Network of wet deposition monitors planned
- Goal: Quantify near-field deposition rates and confirm cause/effect relationships. Quantify “background” amounts of PFAS in rainwater.
- Preliminary wet deposition samples under analysis
 - Source-oriented sites near Chemours
 - 2 northeast of facility
 - 2 southwest of facility
 - Background sites
 - Asheville
 - Raleigh
 - Candor
 - Wilmington



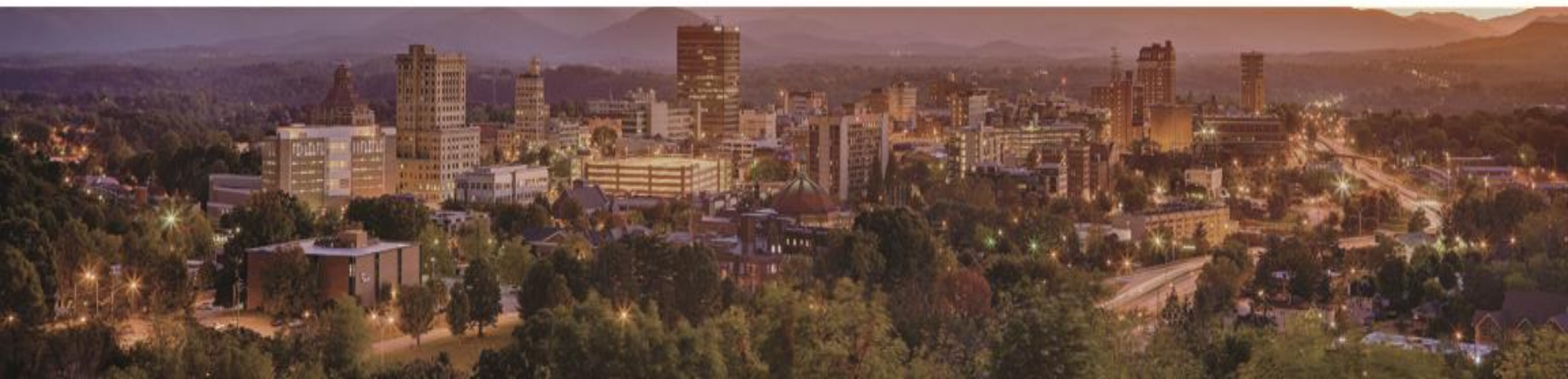
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Ambient Air Quality Monitoring

- Gather available samples from the National Atmospheric Deposition Program in NC and send to EPA lab for analysis of PFAS.
 - Clinton Crops site in Sampson County
 - Jordan Creek in Scotland County
- EPA has agreed to do the lab analysis.



DEQ Enforcement





Enforcement

- 60-day Notice of Intent to Revoke National Pollution Discharge Elimination System (NPDES) Permit (9/5/17)
- Motion for Temporary Restraining Order and Motion for Preliminary Injunctive Relief filed in Bladen County (9/7/17)
- Partial Consent Order entered with Bladen County Superior Court (9/8/17)
- Notice of Violation and Intent to Assess Civil Penalty for failure to notify of release on Oct. 6th (11/13/17)
- Notice of Partial Suspension and 60-day Notice of Intent to Partially Revoke NPDES Permit (11/16/17)
- Immediate Action Notice of Violation to Address Groundwater Contamination (02/12/18)

Marine Corps Outlying Field (MCOF) Atlantic

- 223 drinking water samples were collected in the sampling area during initial sampling by the Navy in Nov-Dec 2017.
- 197 samples had non-detect values.
- 26 samples had detections.
- 2 samples had detections above the EPA lifetime health advisory (LHA) of 70 parts per trillion (ppt).*



No detections – 96% (26 of 27)
 Detections less than LHA – 4% (1 of 27)
 Detections greater than LHA – 0% (0 of 27)

No detections – 87% (117 of 134)
 Detections less than LHA – 12% (17 of 134)
 Detections greater than LHA – 1% (1 of 134)

No detections – 80% (54 of 62)
 Detections less than LHA – 18% (8 of 62)
 Detections greater than LHA – 2% (1 of 62)

LEGEND
 □ Parcel
 ➔ Assumed Groundwater Flow Direction

Marine Corps Outlying Field (MCOFL) Atlantic

- Navy is the lead; DEQ is acting in a supporting role to the Navy
- DEQ participated in a public meeting held by the Navy in Atlantic, NC on November 8, 2017
- DEQ is participating in a second public meeting on February 21, 2018
- DEQ is one of the primary point-of-contacts for the local community

Questions ?

