Background on GenX in Cape Fear Watershed, N.C.

- Two chemicals that are intended to replace PFOA/PFOS have been found in the Cape Fear River, which is the source for the Wilmington, NC drinking water system (the Cape Fear Public Utility Authority (CFPUA)). These two chemicals are regulated under TSCA, not the SDWA.
- Chemours, at a GenX facility near Fayetteville, has begun the process of capturing GenX-tainted wastewater so that it is not released into the Cape Fear River in N.C. and has agreed to bear all costs for the water collection and analysis of 13 water samples described below. The samples are being sent to a private laboratory in Colorado, and the EPA ORD lab in RTP for independent verification.
- At the request of the N.C. Department of Environmental Quality (NCDEQ), ORD scientists are conducting an independent lab analysis of six rounds of wastewater, surface water, ground water, and treated drinking water samples being collected by NCDEQ at 13 locations in the Cape Fear River this summer: https://deq.nc.gov/news/hot-topics/genx-investigation.
- On July 13 the results of the first round of samples collected between June 19 and July 6 along the Cape Fear River were released by NCDEQ. The state also updated its health goal for drinking water to 140 nanograms per liter (also referred to as parts per trillion). *(The analysis of this first batch of samples found that GenX was present in every sample. The range, as analyzed by the two independent labs, varied widely from 4 ng/L (background sample) to 21,760 ng/L (industrial effluent sample). Finished drinking water samples varied widely from 51 ng/L to 1,100 ng/L.*
- The lab method being used by EPA in this analyses was developed by EPA/ORD scientists and has been used in EPA research and in analysis efforts. Press release by NCDEQ reported concentrations trending down.
- EPA is investigating Chemours' compliance with TSCA including the requirements of a 2009 order issued under TSCA for the production of GenX (replacing PFOS) to control releases to the environment at the Fayetteville, N.C., facility and impacting Wilmington drinking water. EPA is also reviewing the additional toxicity data submitted by the company, as required under the consent order, and updating the risk assessment using more recent production data and the additional GenX toxicity data.

- On July 17, NC Governor Cooper sent a letter to EPA urging EPA to set limits, revisit the consent order, require studies.
- There is no EPA health advisory level for GenX.
- EPA is committed to protecting public health and working collaboratively with states to ensure that together, we are prepared to respond to findings of GenX in our Nation's waters. EPA is working closely with and supporting North Carolina and their public water systems to address GenX in the Cape Fear River.
- EPA's RTP lab has been assisting the State of North Carolina with laboratory analysis of water samples collected from sites along the Cape Fear River. The State has been releasing sampling results on its website, and the most recent results (week of July 17) indicate all sites have GenX levels below the state's 140 ppt health goal.

Timeline:

2007 – EPA ORD publishes its first research on PFAS in the Cape Fear River Basin in *Environmental Science & Technology* . Results provided evidence of multiple sources of PFAS throughout the Basin.

2008 – EPA receives GenX as a "new chemical notice" from DuPont (which is now Chemours).

2009 – EPA enters into consent order with DuPont under TSCA for the production of GenX that requires DuPont to recover, capture, or recycle GenX from air emissions and water discharges at the company's facilities in the US at a rate of 99%. EPA determined that GenX could go on the market if the conditions of the consent order were met.

2009 – Present – EPA scientists from ORD continue research into PFAS, including GenX.

2015 – ORD research is published describing new PFAS compounds discovered in the Cape Fear River. One of the many new compounds is "undecafluoro-2-methyl-3-oxahexanoic acid", which ultimately becomes more commonly known as "GenX".

2016 – Peer-reviewed journal article by EPA scientists in *Environmental Science & Technology Letters* reports findings of GenX in drinking water for the first time.

2017

May 17 - A journalist working on a story for the StarNews in Wilmington, NC contacts EPA researchers about the 2016 journal article referenced above.

June 7 - StarNews publishes article: A chemical replacement (GenX) for a key ingredient in Teflon linked to cancer and other ailments has been found in the Cape Fear River and Cape Fear Public Water supply, which cannot filter it.

June 14 - At Governor Cooper's direction, the NCDEQ and North Carolina Department of Health and Human Services (NCDHHS) launched an investigation into the presence of GenX in the Cape Fear River, which serves as the primary source of drinking water for Bladen, Brunswick, New Hanover and Pender counties.

June 14 - NCDEQ requests EPA analyze 6 rounds of water samples being collected at 13 locations in the Cape Fear river. Chemours has also contracted with Test America for sample analysis.

June 20 – EPA announces that it has started an investigation into Chemours' compliance with TSCA including the 2009 consent order. This investigation will allow EPA to determine whether they are in compliance with the requirements of the consent order to control releases at the Fayetteville, NC facility. EPA is in the process of reviewing the additional toxicity data submitted by the company as required under the consent order and updating the Risk Assessment using the additional toxicity data specific to GenX.

June 20 - Chemours announces voluntary actions to capture, remove and safely dispose of wastewater that contains a GenX type chemical/intermediary generated from production at its Fayetteville, NC site.

June 28 -29: EPA conducts an onsite TSCA inspection at the NC Chemours facility and requests additional information.

June 29 - NCDHHS releases summary of selected cancer rates for counties in Cape Fear region; the results do not point to consistent trends in counties that get their water from the lower Cape Fear.

July 13 - EPA analysis of the first three rounds of sampling are shared with NCDEQ. NCDEQ issues press release: Treated drinking water concentrations trending down; latest levels below updated health risk threshold of 140 ng/L (also

referred to as parts per trillion). Analysis of the additional three rounds of sampling will be available later this summer.

July 17 - NC Governor Cooper sends letter to Administrator Pruitt/issues press release urging EPA to set limits for GenX; revisit the 2009 consent order to modify it to apply to all releases of GenX to include production as well as when it is a byproduct; and to require companies submit multiple health studies re: several exposure methods when registering chemicals under TSCA.

August 1 – NC Governor Cooper expands state science panel to address new or unregulated chemicals

August 1 – EPA receives the remaining additional information requested from Chemours as a part of the investigation.

August 2 - NCDEQ announces additional test results (incl. lab work from EPA-RTP) from Cape Fear River; state notes ongoing downward monitoring trend and results below state public health goal

July 21 version, with potential August 8 updates shown in yellow

Background Q&A on Setting Drinking Water Health Advisories

What is a health advisory?

- Health advisories provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water.
- EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination.
- It is an important companion to programs designed to regulate contaminants in drinking water under the Safe Drinking Water Act.
    - EPA has been clear that Health Advisories (HAs) are only for guidance and are not enforceable standards.
    - HAs are available for over 200 contaminants, including organic, inorganic, and microbial compounds.

What process does EPA follow to set a health advisory?

- EPA bases drinking water health advisories on a robust review of technical information on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination.
    - For PFOA/PFOS, the health advisory was based on the best available peer-reviewed studies of the effects of PFOA/PFOS on laboratory animals (rats and mice) and were also informed by epidemiological studies of human populations that have been exposed to perfluoroalkyl substances (PFASs).
- The health effects information is subject to internal and external peer review.
- Historically, HAs and the National Drinking Water Regulations have been published together in the *Drinking Water Standards and Health Advisory Tables*. These tables are updated periodically, as new information becomes available.