

GenX Information

What is GenX?

GenX is the trade name for a chemical that is a member of a large group of man-made chemicals known as per- and polyfluoroalkyl substances (PFAS). PFAS have been used in commercial products such as food packaging, nonstick coatings, and firefighting foam. GenX is used in manufacturing nonstick coatings, as a replacement for other PFAS, and can also be produced as a byproduct of some manufacturing processes.

What Health Advisory Level exists for GenX in drinking water?

The EPA has recently published a drinking water health advisory for GenX Chemicals. EPA's national drinking water health advisory for GenX chemicals is an important step toward protecting drinking water supply and developing a drinking water regulation for GenX. This health advisory is for drinking water only and should not be compared to GenX levels in fish, rainwater, or air. The EPA drinking water health advisory for GenX will replace the 2017 NCDHHS provisional drinking water health goal of 140 parts per trillion (ppt) for GenX and inform our public health guidance going forward.


| Chemical | Health Advisory Level (ppt) |
|----------|-----------------------------|
| GenX | 10 |

The U.S. Environmental Protection Agency (EPA) releases drinking water health advisories based on the latest science about human health risks of chemicals known to be found in drinking water. Drinking water health advisories are not regulatory drinking water standards or enforceable limits; rather, they serve as guidance for states and drinking water system operators. Importantly, a health advisory is not a boundary line between “safe” and “dangerous” levels for a chemical. The health advisory level means that there is an increased risk of adverse health effects over a lifetime of consuming water with levels greater than this value. Health advisories are created using an abundance of caution to be protective of people at an increased risk of adverse health effects including pregnant women, nursing mothers, and children, as well as other adults.

How can I reduce my exposure to GenX?

Based on current information, most exposure to GenX occurs through drinking contaminated water. Groundwater (including well water) and surface water (including water from rivers, lakes and streams) may contain elevated levels of GenX and other PFAS.

- If your drinking water exceeds the EPA health advisory level of 10 ppt, use a different water source or filter your water before drinking, cooking, and preparing infant formula.
- There is limited information about exposure to GenX from sources other than drinking water. You can continue healthy activities such as playing and exercising outdoors.

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- The NC Department of Environmental Quality (NCDEQ) is working on all fronts to reduce exposures to GenX and other PFAS. This includes continuing efforts to reduce emissions and discharges from the Chemours Fayetteville Works Plant near the Bladen and Cumberland county line and to reduce GenX and other PFAS as much as possible in drinking water.

People can be exposed to other types of PFAS in multiple ways, including through food, indoor dust, consumer products, and workplaces such as manufacturing facilities where PFAS are used.

How can I get my water tested? How often should it be tested?

Water from a Private Well

- If you live in the Fayetteville and lower Cape Fear region, you may be eligible for water testing under the Consent Order between NCDEQ, Chemours, and Cape Fear River Watch. Visit the [NCDEQ website](#) for more information or contact Chemours to request well testing: For Bladen, Cumberland, Sampson, and Robeson counties (910) 678-1101 or (910) 678-1100 for New Hanover, Pender, Columbus and Brunswick counties. Those with GenX levels exceeding the EPA Health Advisory may be eligible for replacement drinking water supplies or filtration.
- Private well owners should regularly test their wells for many possible contaminants. For more information on routine private well testing, go to <https://epi.dph.ncdhhs.gov/oe/wellwater/faqs.html>. More info on PFAS testing and filtration can be found on the [PFAS Testing and Filtration Resources Fact Sheet](#).

Water from a Public Water Supply

- Reach out to your water utility provider with questions regarding concentrations of GenX in your public water supply. Several utilities are monitoring PFAS in their finished drinking water and posting results online for consumers.
- Several utilities in the lower Cape Fear region are already implementing treatment systems to limit levels of GenX and other PFAS in municipal drinking water supplies.

Why is EPA's health advisory level for GenX lower than the 2017 NCDHHS provisional drinking water health goal?

The EPA health advisory is based on the [GenX toxicity assessment](#) released in October 2021. The toxicity assessment reviewed new science, which included studies published after NCDHHS calculated the provisional drinking water health goal in 2017. According to the EPA, the newer studies generated more data and increased uncertainty about health effects, which led to a lower reference dose. This new GenX chronic reference dose is lower than the NCDHHS GenX chronic reference dose used to calculate the provisional drinking water health goal in 2017. This results in an EPA health advisory level lower than the NCDHHS provisional drinking water health goal.



How can GenX affect my health?

According to new science evaluated by the EPA, exposures to GenX via ingestion have been associated with liver problems, kidney problems, changes in blood cells, reduced immune system response, developmental/reproductive effects, and cancer. However, the health effects associated with exposure to any hazardous substance depends on how much, for how long and the way in which you are exposed. The effects also depend on personal factors such as family history, overall health, and lifestyle.

Laboratory studies of animals show effects on the liver at GenX exposure levels lower than levels where other effects are seen, indicating that the liver may be sensitive to GenX. Other negative effects seen in animal studies at higher levels include effects on the kidney and immune system, and developmental effects as well as liver, pancreatic, and testicular cancer. Animal toxicity studies are a helpful starting point for understanding the potential health effects of GenX, but the relevance to human health cannot be fully understood without more human research studies.

Scientists are actively studying the health effects of GenX and other compounds to learn more. NCDHHS continues to work with various federal and state partners to review all new health and toxicity information about these compounds and will share new information with affected communities, as it becomes available.

What is the plan to reduce GenX in the environment?

We are working on all fronts to continue to reduce exposures to GenX and other PFAS. This includes continuing efforts to reduce emissions and discharges from the Chemours plant and efforts to reduce GenX and other PFAS as much as possible in drinking water. The [NC Department of Environmental Quality's Action Strategy for PFAS](#) details NCDEQ's priorities and planned actions to reduce PFAS in our state. The [US EPA's PFAS Strategic Roadmap](#) details national policies, priorities, and actions planned for the next five years.

For more information:

- NCDHHS GenX Webpage: https://epi.dph.ncdhhs.gov/oea/a_z/genx.html
- NCDHHS PFAS Webpage: https://epi.dph.ncdhhs.gov/oea/a_z/pfas.html
- NC Department of Environmental Quality (NCDEQ) GenX Investigation: <https://deq.nc.gov/news/key-issues/genx-investigation>

If you have concerns about health effects related to GenX or other chemicals, contact NCDHHS at 919-707-5900.

