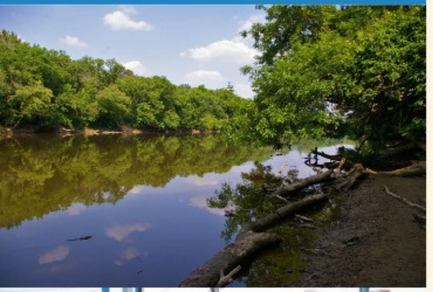
WHAT'S IN YOUR WATER?

GENX AND OTHER EMERGING CONTAMINANTS



H2GO

This summer, water customers throughout the Cape Fear Region learned what water industry professionals have suspected for years: There are a variety of known and unknown chemical compounds in your river and in your drinking water.

The toxin GenX grabbed headlines because of the excellent, informative research study conducted by Dr. Detlef Knappe, his NC State team, and EPA staff researchers. There are, however, newer ("novel") compounds in the water without catchy names that demand our attention. This brochure provides our customers with the heart of what we know about the Cape Fear River as our source for drinking water; the GenX toxin; the presence of other emerging contaminants; and how H2GO is approaching these potential risks to public health.

The Cape Fear River

More than 200 miles long, the Cape Fear River serves as the source of your drinking water. Recently, the nonprofit organization American Rivers, declared the Cape Fear River as the 7th most endangered river, largely because of the concentration of at-risk hog farms operating within the river basin. Flooding from severe storms, like Hurricane Matthew, can send millions of gallons of untreated animal waste down river.

Water treatment professionals here at the end of the flow must implement a variety of treatment processes, adjusted in real time, to treat and deliver drinking water that meets current standards.

The discovery of GenX revealed another threat to our drinking water: undocumented discharges of unregulated chemicals that are potential carcinogens and endocrine disruptors. Before Dr. Knappe's study, the presence of GenX in both the Cape Fear River and in our drinking water was unknown. After the GenX story broke, Chemours revealed they had been dumping GenX into the Cape Fear River for 37 years.

Unfortunately, existing water treatment facilities cannot remove these newly discovered emerging contaminants like GenX from our drinking water supplies.

GenX

GenX is a perfluorinated chemical compound used by Chemours to make high-performance polymers for non-stick cookware, stain protectants, and similar products. GenX replaced the known-carcinogen C8, or PFOA (perfluorooctanoic acid), in their manufacturing processes. GenX is considered an emerging contaminant or EC - a "chemical or material characterized by a perceived, potential, or real threat to human health or the environment or by a lack of published health standards". While there are no human studies regarding the health effects of GenX, animal studies revealed non-cancer effects on the liver and red blood cells and cancer effects on the pancreas, liver and testicles.

Since June 7, 2017, the North Carolina Department of Health and Human Services (DHHS) has issued two health assessments for GenX. At first, NC DHHS stated that 70,909 parts per trillion (PPT) of GenX was considered to be the "Derived No Effect Level" for public health. Further investigation by NC DHHS led it to cut the "Derived No Effect Level" by 99.8% to 140 PPT as a health goal. This means that there could be an increased risk of adverse health effects over a lifetime of consuming water with levels greater than 140 PPT. The most vulnerable consumers are infants, children, pregnant women, and nursing mothers.

Dr. Knappe's team found GenX concentrations in the Cape Fear River with a range of 55 PPT to 4560 PPT, averaging 631 PPT at the raw water intake during the study. Since Chemours stated it would stop discharging GenX into the water in June, levels have been found both above and below the 140 PPT health goal, with a mostly downward trend.

Other Emerging Contaminants

GenX itself makes up about one-half of one percent of the perfluorinated compounds recently discovered in the Cape Fear River. In addition to GenX, the scientists detected six other similar perfluorinated compounds, which could be more toxic, in the river water. Some of these levels were found to be 50 to more than 100 times the levels of GenX. Unfortunately, testing standards and toxicity data is not available for these other emerging contaminants. In all, experts estimate there may be as many as 6,000 different compounds similar to GenX in existence, most all of them unregulated.

In 2015, the same undocumented dumping of GenX was discovered with another emerging contaminant, 1,4-dioxane. Dr. Knappe's team was also responsible for finding this potential carcinogen in the Cape Fear River. Their work would eventually find that multiple upstream industries were dumping 1,4-dioxane into their communities' sewer pipes, which then passed through treatment plants and back into the Cape Fear River. Thanks to Dr. Knappe's work, 1,4-dioxane levels in the river have been reduced.

As one NC Department of Environmental Quality regulator recently stated about the discovery of GenX, "We need to look into it ourselves. Unfortunately, with these unregulated contaminants, we have one hitting us after another and we're trying to deal with it."

Dealing with Contaminants

As we stated at the start of this brochure, water professionals have been dealing with the issue of emerging contaminants for years. For this and other reasons, H2GO began planning for the construction of a groundwater-sourced, reverse osmosis water treatment plant in 2011.

The plant will use groundwater from the Lower Peedee and Black Creek aquifers, taking all of our more than 10,000 households off the endangered Cape Fear River water supplies. In addition, the

state-of-the-art treatment process will provide you with a level of water quality unsurpassed in the region without raising your rates.

'With these unregulated contaminants, we have one hitting us after another and we're trying to deal with it."

- NC Department of Environmental Quality Regulator

NC DHHS has stated it will not be making blanket recommendations about water use in the wake of the GenX discovery and has encouraged people to consider individual health risk assessments when making decisions about water use. As a responsible water utility, H2GO believes the continued discovery of these chemicals in relatively high concentrations makes the construction of the RO plant even more essential to preserve and protect the public health and welfare. Once constructed, H2GO will be the only utility in the region to provide its customers with water that is free from the threat of all current and future emerging river contaminants.

All of the statements made in this brochure can be traced to public health or water industry experts, or scientific publications. Some statements are taken verbatim to ensure accuracy. For a complete list of sources, visit H2GOonline.com.