

Perfluorinated Chemicals in the Paulsboro Public Drinking Water System

Update: March 27, 2014



- Perfluorinated chemicals, including perfluorononanoic acid (PFNA), have been found in the public drinking water supply in Paulsboro, New Jersey.
- As a precaution, the New Jersey Department of Health (NJDOH) advises that residents use bottled water for infant formula and other drinking uses for children up to the age of one year, until actions are taken to reduce or eliminate the exposure.
- Steps are currently being taken to reduce the amount of PFNA and other PFCs in the Paulsboro public drinking water supply.

What are perfluorinated chemicals?

Products made from man-made perfluorinated chemicals (PFCs) can repel water and oil, and are resistant to heat and chemical reactions. They therefore have important industrial and commercial uses. PFCs are used in the production of water-proof and stain-proof fabric, in some stick-free cookware, in “leak-proof” coatings on packaging materials, in fire-fighting foams, and in other uses.

These compounds are not broken down in the body. Four types of PFCs have been found in the blood (serum) of more than 98% of the United States population. These four PFCs stay in the body for many years.

- PFOS – perfluorooctane sulfonate
- PFOA – perfluorooctanoic acid
- PFNA – perfluorononanoic acid
- PFHxS – perfluorohexane sulfonate

PFCs can enter drinking water through industrial releases to water or air, discharges from sewage treatment plants, land application of sludge, and use of fire-fighting foam.

Where can PFCs be found?

Because PFCs do not break down, they remain in the environment for a long time. Some PFCs, including PFNA, dissolve in water and can accumulate in fish living in contaminated waters.

Drinking water may be a major source of exposure to PFNA and other PFCs for people living in communities with contaminated drinking water. Other sources of PFC exposure include food, food packaging, consumer products, house dust, indoor and outdoor air, and at workplaces where PFCs are made or used.

How am I exposed to PFNA through drinking water?

Exposure to PFNA and other PFCs in drinking water is primarily from ingestion. Exposure through other household uses of water such as showering, bathing, laundry and dishwashing is not significant.

Infants consume much more water per body weight than older individuals, so their exposures may be higher than adults in communities with PFCs in drinking water.

What are the health effects of exposure to PFCs?

Much of the information on the health effects of PFCs in humans and animals is recent, and new studies are continually becoming available. More data about possible health effects are available for PFOA and PFOS than for PFNA, PFHxS, and other PFCs.

In experimental animals, PFCs cause developmental, immune, neurobehavioral, liver, endocrine, and metabolic toxicity, generally at levels well above human exposures. Studies of the general population, communities with drinking water exposures, and exposed workers suggest that PFCs increase the risk of a number of health effects. The most consistent human health effect findings for PFOA – the most well-studied of the PFCs – are increases in cholesterol and uric acid levels.

In humans, exposure to PFCs before birth or in early childhood may result in decreased birth weight, decreased immune responses, and hormonal effects later in life. More research is needed to understand the role of PFCs in developmental effects.

 **Continue to
Page 2**

Continued....

PFOA and PFOS caused tumors in rodent studies. In a community exposed to PFOA through drinking water, individuals with higher PFOA blood concentrations had increased risk of kidney and testicular cancer.

What levels of PFNA were found in Paulsboro?

PFNA was detected at 150 parts per trillion (ppt) in water from Paulsboro Water Department's well #7. Although PFCs are not regulated in drinking water, the New Jersey Department of Environmental Protection (NJDEP) developed a guideline for long-term exposure to PFOA, a related PFC, of 40 ppt. The USEPA's guideline for short-term exposure to PFOA in drinking water is 400 ppt. NJDEP has developed a draft interim specific ground water criterion for PFNA, and is currently seeking public input. See <http://www.state.nj.us/dep/dsr/pfna>.

What is being done to lower the levels of PFNA and other PFCs from Paulsboro's drinking water supply?

The Borough of Paulsboro is working with the NJDEP and Solvay Specialty Polymers to take steps to reduce exposure to PFNA and other PFCs. See <http://www.paulsboronj.org> for updates. Solvay is conducting an investigation to better understand the scope of water contamination.

What does NJDOH recommend about drinking the water?

Until actions are taken to reduce exposure, it is advisable to use bottled water to prepare infant formula for bottle-fed babies. Beverages for infants up to one year of age, such as juice made from concentrate, should also be prepared with bottled water.

This recommendation was made out of an abundance of caution because infants up to one year of age receive most of their nutrition through the ingestion of liquids. Infants drink five times the amount of fluid per pound of body weight compared to an adult.

PFCs accumulate in the body over time and are found in breast milk. Since the benefits of breast-feeding are well-established, infants should continue to be breast-fed.

What about older children, pregnant and nursing mothers, and other adults?

Since actions are expected to be taken soon to reduce exposure to PFNA in drinking water, no changes in drinking water habits are recommended. Families concerned about PFNA in their drinking water may choose to drink and cook with bottled water.

Is there a medical test to see if I have been exposed to PFNA or other PFCs?

PFNA and other PFCs can be measured in your blood serum, but this is not a routine test. While a blood test may indicate whether someone has been exposed, it cannot be used to tell someone whether there is a health risk. Having PFNA in your blood does not mean that you will experience adverse health effects.

Since 2003, a national biomonitoring program performed by the Centers for Disease Control and Prevention (CDC) has been measuring levels of 12 types of PFCs in a representative sample of the U.S. population. This information establishes background levels of PFC concentrations in blood and allows public health agencies to monitor levels over time.

Can I do anything to remove PFNA from my drinking water at home?

Available home water treatment devices are not designed or certified for removal of PFNA or other PFCs. Granular activated carbon filters or reverse osmosis water treatment devices may reduce the level of PFCs in drinking water. However, neither the effectiveness of these units for PFC removal nor the requirements for proper maintenance have been established.

PFNA is **not** removed from water by boiling.

What else is the government doing about PFCs in drinking water?

The USEPA is currently requiring large public water systems in the U.S. to test for PFNA as part of the Unregulated Contaminant Monitoring (UCM) program. This information will assist the USEPA in determining whether future regulation is needed.

In cooperation with USEPA, major manufacturers have agreed to phase out the production of many PFCs, including PFNA, with the goal of eliminating their use by 2015. As part of this effort, Solvay stopped using PFNA at its West Deptford plant in 2010.

More information and resources about PFCs can be found at:

<http://nj.gov/health/eohs/index.shtml>