

# Frequently Asked Questions: Newburgh Area PFOS Contamination

## What is PFOS?

Perfluorooctanesulfonic acid (PFOS, or perfluorooctane sulfonate) is a chemical manufactured in the United States from about 1949 until its phase out began in about 2000. PFOS was the key ingredient in Scotchgard®, a fabric protector made by 3M, and numerous stain repellents for clothing, upholstery, and carpets. PFOS was also used in paper, waxes, polishes, paints, varnishes, and cleaning products. It has also been a key ingredient in firefighting foam.

## How can people be exposed to PFOS?

PFOS is widespread and persistent in the environment. It has been found in small quantities in water around the world and can be found at low concentrations in food. It has also been found in the blood or tissues of various species of wildlife such as fish and marine mammals. Industrial pollution and accidental releases of PFOS can enter the environment through contaminated water or soil causing higher than usual amounts of PFOS exposure for the local populations if no protective measures are taken.

## What is the source of the PFOS contamination in Newburgh?

The New York State Department of Environmental Conservation (DEC) has identified Stewart Air National Guard Base as a source of the PFOS contamination detected in the area and in the City of Newburgh public drinking water supply. DEC has listed the base as a state Superfund site and will use its full legal authority to ensure an expedited site clean-up. PFOS-containing firefighting foam has been used at the site for emergency response and training exercises. The state continues to investigate other areas at and near the Stewart property to determine if any other significant sources of PFOS contamination exist.

## What kind of sampling is occurring in Newburgh and who is doing it?

Between December 2013 and October 2014, the City of Newburgh tested the drinking water for PFOS as part of a U.S. Environmental Protection Agency (EPA) program to test public water systems for unregulated contaminants. The test results were reported to the EPA in 2014 and 2015 and to Newburgh residents in the water system's 2014 and 2015 Annual Water Quality Reports. The New York State Department of Health (DOH) reviewed this data in early 2016 and retested the drinking water in March 2016. The results confirmed the previous findings. All results were below the provisional health advisory level that EPA was using at that time. Even so, the State and City worked to identify the source of contamination, investigate alternative drinking water and treatment options and perform additional testing.

In addition, NYS DOH worked with the Orange County DOH and the Town of New Windsor to identify approximately 80 properties with private wells that could potentially be tested. Outreach to residents and/or owners of these properties has been done and testing of the wells is underway.

The DEC has jurisdiction over the natural resources of New York State. DEC has been testing environmental samples to identify the nature and sources of PFOS contamination at and near the City of Newburgh's Lake Washington reservoir and Stewart Airport.

## What did sampling for the public water system show?

In 2013 and 2014, Newburgh tested the drinking water for PFOS as part of an EPA program to test for unregulated contaminants. At that time, the City used Lake Washington as its source water. Those samples were taken by the City and reported to EPA and the public. The results for those samples as well as those collected and analyzed by NYS DOH are in the table below.

## City of Newburgh Drinking Water Sample Results for PFOS<sup>1</sup>

Date	Source Water	Sampling Program	PFOS Result (ppt)	EPA Health Advisory (ppt)
12/30/2013	Washington Lake	EPA UCMR	170 <sup>2</sup>	200
04/15/2014	Washington Lake	EPA UCMR	150 <sup>2</sup>	200
06/02/2014	Washington Lake	EPA UCMR	140 <sup>2</sup>	200
10/21/2014	Washington Lake	EPA UCMR	140 <sup>2</sup>	200
03/31/2016	Washington Lake	NYS DOH	146 <sup>3</sup>	200
03/31/2016	Washington Lake	NYS DOH	148 <sup>3</sup>	200
05/02/2016	The City of Newburgh switched its source to Brown's Pond.			
05/04/2016	Brown's Pond	NYS DOH	8.4 <sup>4</sup>	200
05/04/2016	Brown's Pond	NYS DOH	7.2 <sup>4</sup>	200
05/11/2016	Brown's Pond	NYS DOH	2.5 <sup>5</sup>	200
05/11/2016	Brown's Pond	NYS DOH	2.3 <sup>5</sup>	200
05/19/2016	EPA established a lifetime health advisory level of 70 ppt for PFOS, PFOA and both substances combined.			
06/07/2016	The City switched its source to the New York City Catskill Aqueduct.			
06/16/2016	Catskill Aqueduct	NYS DOH	<2 <sup>6</sup>	70
06/16/2016	Catskill Aqueduct	NYS DOH	<2 <sup>6</sup>	70

<sup>1</sup> All samples were also analyzed for six PFCs including PFOS, PFOA, PFBS, PFHxS, PFOHpA, and PFNA.

<sup>2</sup> In addition to PFOS, PFHpA and PFHxS were also detected in the samples.

<sup>3</sup> All six PFCs were detected consistent with the UCMR sampling. The differences are due to the lower detection limits used in the recent sampling. The detection limits under EPA's UCMR were at least tenfold higher than NYS DOH's detection limits for all PFCs.

<sup>4</sup> Detections likely represent residual PFOS within sample tap lines. Trace amount of PFOA was detected in the samples.

<sup>5</sup> Trace amount of PFOA was detected in the samples.

<sup>6</sup> None of the six PFCs were detected.

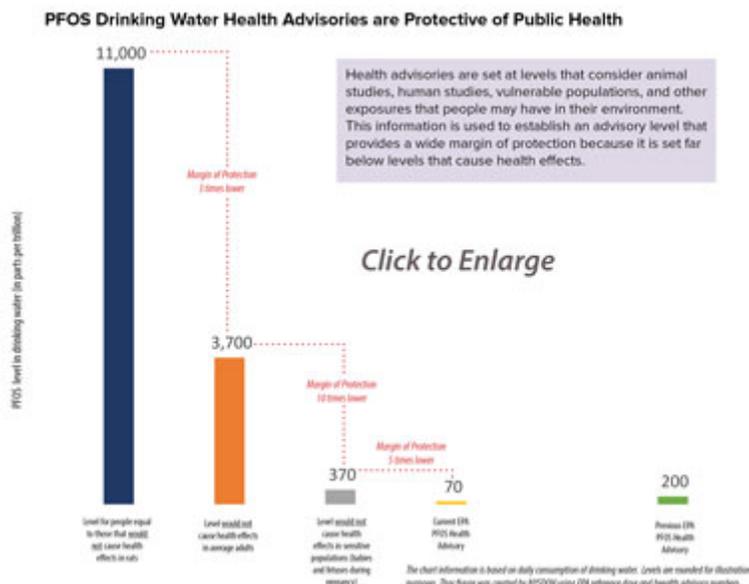
## What is the State doing to address drinking water quality in Newburgh?

The state has advanced a comprehensive and aggressive response to PFOS contamination in the Newburgh area. To date, the state has:

- Swiftly worked with the City to transition residents to cleaner, alternative drinking water supplies, Brown's Pond in early May 2016 and the Catskill Aqueduct in early June 2016.
- Committed to fund all Catskill Aqueduct water payments and advanced the first \$2.4 million payment to the City in September 2016.
- Committed to fund and started to construct a Granular Activated Carbon (GAC) system at the City of Newburgh water plant to remove PFOS from Lake Washington water that will be completed by the fall of

2017.

- Committed to fund and started to construct upgrades to the Catskill Aqueduct connection at the City of Newburgh's alternate water source pump station that will be completed by winter 2016/2017.
- Conducted a comprehensive site investigation that identified Stewart Air National Guard Base as the likely source of PFOS contamination in the area due to the use of PFOS-containing firefighting foam.
- Listed Stewart Air National Guard Base as a state Superfund site in August to hold the U.S. Department of Defense responsible for full site clean-up.
- Launched an ongoing initiative to sample private wells in the Lake Washington area near the Town of New Windsor/Town of Newburgh border.
- Initiated an effort to lower the water level in Lake Washington—by pumping, filtering, and discharging clean water into the watershed—in order to ensure the integrity of the dam.
- Launched a fish sampling program to better understand the extent of contamination in the watershed.
- Began an updated source water assessment for the watershed.



## What is the Health Advisory for PFOS and PFOA in Drinking Water?

In May 2016, EPA established a health advisory level of 70 ppt for PFOS and PFOA in drinking water. EPA's advisory level provides a margin of protection against adverse health effects from a lifetime of exposure to PFOS and PFOA from drinking water. The difference between the advisory level and the level that might cause health effects is called the "margin of protection." The margin of protection includes the most sensitive populations: fetuses during pregnancy and breastfed infants. Health advisory levels are set at much lower levels than those that might cause health effects in people. Health advisory levels are not "bright lines" between drinking

water levels that might cause health effects and those that do not. Please see the [PFOS Drinking Water Health Advisories are Protective of Public Health](#) graphic for more information.

## What does it mean if a health advisory has been exceeded?

The difference between the advisory level and the level that might cause health effects is called a margin of protection. When a health advisory is exceeded, it raises concerns not because health effects are likely to occur, but because it reduces the margin of protection provided by the health advisory.

In the case of PFOS, the EPA lifetime health advisory of 70 ppt provides a considerable margin of protection. This advisory was based on calculated human exposure from drinking water containing 11,000 ppt of PFOS, which was derived from an animal study that showed that rats with the same exposure did not show effects of PFOS toxicity. To obtain the advisory of 70 ppt, 11,000 ppt was divided by factors of 3, 10, and 5 because of concerns that humans may be more sensitive than rats to the same PFOS dose (factor of 3), that sensitive humans may be 10-times more sensitive than an average human (factor of 10), and that there may be other sources of PFOS exposure other than drinking water (factor of 5). The graphic shows this process and each factor (total factor 150) involved in calculating the advisory of 70 ppt.

## Is the water in the City of Newburgh currently OK to drink?

Yes, the City's public water supply is acceptable for all uses, including drinking, cooking, and bathing. The state transitioned the City to the Catskill Aqueduct in early June 2016.

## **Are there other perfluorinated compounds (PFCs) detected in water in addition to PFOS?**

NYS DOH tested for six PFCs, including PFOS, for all three water sources. All six PFCs were detected in Lake Washington. Only trace amounts of PFOS and PFOA were detected in Brown's Pond, and no PFCs were detected in the Catskill Aqueduct water. The EPA has health advisory levels for PFOS and PFOA, but not for any other PFCs. Granular Activated Carbon (GAC) treatment systems have been shown to be effective for removing all six PFCs from water.

## **Is any drinking water pure and free of chemicals?**

No, all drinking water contains chemicals. Some of these are naturally occurring and some are not. Public drinking water, water from private wells, and bottled water may contain small amounts of some chemicals. However, the presence of chemicals does not necessarily indicate that the water poses a health risk. Federal and state drinking water regulations set limits on the amount of many chemicals in water provided by public water systems. For other chemicals, such as PFOS, health guidance values such as the EPA lifetime health advisory are used to assess the need for actions to reduce people's exposure.

## **I drank the water in Newburgh when it contained elevated levels of PFOS. Should I be concerned about my health or the health of my family?**

According to the U.S. Agency for Toxic Substances and Disease Registry (ATSDR), scientists are not yet certain about the possible health effects resulting from human exposure to PFOS and PFOA. For the most part, laboratory animals exposed to high doses of these chemicals have shown changes in the liver, thyroid, and pancreatic function, as well as some changes in hormone levels. Because animals and humans do not always process chemicals the same way, scientific methods are used to account for these differences and ensure their conclusions about chemicals are protective of the public.

Also, according to the EPA, peer-reviewed studies of the effects of PFOA and PFOS on laboratory animals (rats and mice) and epidemiological studies of human indicate that exposure over certain levels may result in adverse health effects, including:

- developmental effects to fetuses during pregnancy or to breastfed infants (e.g., low birth weight, accelerated puberty, skeletal variations),
- cancer (e.g., testicular, kidney),
- liver effects (e.g., tissue damage),
- immune effects (e.g., antibody production and immunity),
- thyroid effects and other effects (e.g., cholesterol changes).

For more information, visit the EPA website at <http://www.epa.gov/> or the ATSDR website at <http://www.atsdr.cdc.gov/>.

## **Should I be concerned if I used the water in the past to shower, bathe, or clean my house and clothes?**

No. Exposure to PFOS from these activities was very small. PFOS is not significantly absorbed through the skin. PFOS does not evaporate out of the water into air, so breathing in PFOS during bathing or showering is not likely to be a significant source of exposure.

## **Should I breastfeed my baby if I drank water containing PFOS? *Weird answer that promotes breast feeding w/o mention of PFOx.***

The U.S. Surgeon General recommends that babies be fed **only** breast milk for the first six months of their lives, and continue on breast milk for at least the next six months. Human breast milk has the right amount of fat,

sugar, water, and protein that a baby needs and it is much easier for a baby to digest breast milk than infant formula. Breast milk helps protect a baby from infections such as colds. Breastfeeding also reduces the risk of allergies, obesity, and illnesses such as ear infections, diarrhea and respiratory infections. It also helps strengthen the bond between a mother and her baby.

According to the [U.S. Centers for Disease Control and Prevention](#), “breastfeeding is still recommended despite the presence of chemical toxins” because “for the vast majority of women the benefits of breastfeeding appear to far outweigh the risks.”

Consistent with EPA [guidelines](#), the State Health Department recommends that breastfeeding women and other consumers be provided with options for alternative drinking water sources when their drinking water exceeds the EPA’s health advisory for PFOA and PFOS to reduce their exposure.

If you have more questions about breastfeeding, you should speak with your healthcare provider.

### **What if I used PFOS-containing water to make formula for my baby?**

The new EPA lifetime health advisory of 70 ppt provides everyone, including the most sensitive populations, which includes breast-fed and formula fed infants, with a margin of protection from exposures during a critical period of growth and development or for as long as a lifetime. As noted in a previous answer (“What does it mean if the health advisory is exceeded”), the advisory is not set at a level that is likely to cause health effects; instead, it is set at a level that is much lower than levels known to cause effects in animals or assumed to cause effects in humans. The PFOS advisory is set at a water level that is 150-times lower than the water level where humans would have the same exposure as animals that were without any observed effects of PFOS toxicity. So, even though the levels of PFOS in the Newburgh water previously exceeded the current EPA advisory level of 70 ppt, the margin of protection was still large enough so that exposures from drinking the water were well below exposures assumed to cause human health effects, even in sensitive populations.

### **Do fish in the Newburgh area waters contain PFOS?**

Studies show that PFOS can be found in fish from waterbodies that have PFOS. Unlike contaminants such as PCBs, cooking fish or trimming the fat from fish will not significantly reduce the levels of PFOS in fish. The DEC will be sampling fish to learn more about potential contamination and whether the public should be advised to limit fish consumption.

### **Can I eat fruits and vegetables from my garden?**

Yes. The current levels of PFOS and other PFCs in the water are so low that the exposures from homegrown fruits and vegetables grown this year would be of no concern.

### **Should I be concerned about eating homegrown fruits and vegetables that I consumed or canned during the time I was watering my garden with water containing PFOS?**

No. Studies show that plants watered with water containing PFOS absorbed very little of the chemical. All available information indicates that the health benefits from growing and eating homegrown produce greatly outweigh any potential risks from low PFOS concentrations.

### **Did watering my garden or lawn with PFOS-containing water contaminate the soil with PFOS at levels that would endanger my family’s health?**

No. PFOS likes to remain in water. Most of the PFOS in soil will move through the soil when gardens/lawns are watered or through rain. Recent studies in New York, Vermont and New Hampshire indicate that soil in areas

near an industrial or landfill source of PFOA (a chemical very similar to PFOS) contain only low levels of PFOA. We would expect the same results for PFOS.

## **Can PFOS be measured in the body?**

Yes. Studies show that human exposure to PFOS is widespread and that most people have PFOS in their blood. PFOS does not break down in the human body and can be present in blood for years after exposure. Therefore, PFOS blood levels largely reflect total exposure over many years. The presence of PFOS in the blood only indicates that exposure has occurred but cannot tell you the source or sources of exposure and whether you will experience any health effects, or that your current health effects were caused by PFOS.

## **Is there a blood testing program for people in Newburgh?**

Yes, the NYS DOH has launched a comprehensive biomonitoring program for all interested residents in the Newburgh area that will serve as a national model for understanding PFOS exposure. NYS DOH has been working closely with the U.S. Centers for Disease Control and Prevention (CDC), Agency for Toxic Substances and Disease Registry (ATSDR), Newburgh community groups, and local elected officials to develop the program and ensure participation. If you are interested in learning more or having your blood tested, please call the Water Quality Hotline at 1-800-801-8092.

## **How can I remove PFOS from my body?**

There is no medical procedure to remove PFOS from the body. The body's natural elimination processes will remove PFOS gradually over time once exposure is removed. Every 5-6 years, the amount in the body is reduced by half. **Half life in body of ca. 5.5 years.**

## **Is it OK to participate in a blood drive or to donate my blood to help someone else who needs it for medical reasons?**

Yes. Blood donations save lives. The State Health Department recommends that people continue to donate blood if they meet the requirements for donating.

## **What is known about the health effects caused by PFOS?**

Studies have demonstrated that PFOS exposure is associated with certain [health effects](#). This includes effects on serum lipids and cholesterol, the immune system, the thyroid, and fetal growth and development. Other factors (such as exposure to other chemicals) may have contributed to the risk. In addition, some studies found associations between PFOS exposure and a given health effect, while other studies did not, even though the studies looked for the same health effect.

## **Can exposure to PFOS cause cancer?**

PFOS caused tumors in laboratory rats fed large amounts of PFOS in their diet for their lifetimes. Human studies are inadequate to make conclusions on the potential for PFOS to cause cancer in humans. The EPA considers PFOS to have "suggestive evidence of carcinogenic potential" because it has been tested in only one animal species (rats). This category is used when concern for potential cancer effects in humans is raised, but the data are judged not sufficient to support a stronger conclusion. In addition, there is some uncertainty about how relevant the tumors observed in rats exposed to PFOS are to evaluating the human health risks from PFOS exposure because of the significant differences in the way PFOS interacts with cells in rats and humans. The International Agency for Research on Cancer and the U.S. Department of Health and Human Services have not yet evaluated the potential for PFOS to cause cancer in humans.

## What about the health effects of other perfluorinated chemicals (PFCs)?

At this time, we do not have toxicological data for all the [PFCs](#). However, these chemicals have similar chemical structures and suggest similar health endpoints.

Further studies are needed to understand whether the same effects are caused by the same type of interaction between the chemicals and the cells and organs of animals and people. The treatment being installed at the City of Newburgh WTP ([Granular Activated Carbon](#)) is expected to remove other PFCs that may be present along with PFOS. **Shouldn't this write-up also include a recommendation for using AC filters for drinking water? Like Brita?**

## Should my children or I see a health care provider?

As always, if you have concerns about your family's health, you should discuss them with your health care provider.

## Where can I get additional information?

- 1. For specific questions about potential health effects**  
Email: [bttsa@health.ny.gov](mailto:bttsa@health.ny.gov), ph: 518-402-7800 (Monday - Friday: 8:30 am - 4:30 pm)
- 2. For specific questions about the public water supply**  
Email: [bpwsp@health.ny.gov](mailto:bpwsp@health.ny.gov), ph: 518-402-7650 (Monday - Friday: 8:30 am - 4:30 pm)
- 3. For specific questions about private wells**  
Email: [beej@health.ny.gov](mailto:beej@health.ny.gov), ph: 518-402-7880 (Monday - Friday: 8:30 am - 4:30 pm)
- 4. For specific questions about blood testing**  
Email: [beoe@health.ny.gov](mailto:beoe@health.ny.gov), ph: 518-402-7950 (Monday - Friday: 8:30 am - 4:30 pm)
- 5. Water Quality Hotline: 800-801-8092**  
(Monday - Friday: 8:30 am - 4:30 pm)