



November 22, 2016

## Perfluoroalkyl Substances — Moose Creek, Alaska

### Introduction

Recently, chemicals called perfluorooctane sulfonate (PFOS) and perfluorooctanoic acid (PFOA) were found in water wells on Eielson Air Force Base and in the Moose Creek residential area in the Fairbanks North Star Borough, Alaska. Contact with these chemicals — such as drinking contaminated water — may cause health problems. Below you will find information you need to know about PFOS and PFOA.

### Summary

- PFOS and PFOA are chemicals that may harm your health.
- If your well has levels of PFOS and PFOA higher than the health advisory (0.07 micrograms per liter), you should use another water source for drinking water and cooking.
- You can still use your water to bathe, clean, wash dishes, and do laundry.
- The Air Force is providing drinking water to people whose well water is above EPA's advisory level for PFOS and PFOA.

### About PFOS and PFOA

#### What are PFOS and PFOA?

PFOS and PFOA are perfluoroalkyl substances (PFAS) — human-made chemicals that have been used for both residential and industrial purposes. PFAS have been found in some products that resist fire, stains, grease, and water such as:

- Furniture
- Carpeting
- Clothing
- Firefighting foams
- Food Packaging

In Moose Creek, the source(s) of PFAS may be certain firefighting foams that contained PFAS.

### **How could I come into contact with PFAS?**

Because PFAS were widely used worldwide, stay in the environment for a long time, and travel long distances in water and air, there are small amounts in many water and some food sources. Most people have come into contact with low levels of PFAS. PFAS are also found in the blood or tissue of wildlife, like fish and marine mammals such as seals and sea lions.

Usually, people come into contact with PFAS by eating or drinking them in food and water. Additionally:

- Women who are exposed to PFAS pass it to their unborn babies during pregnancy — and to their infants through breastfeeding.
- Children may come into contact with small amounts of PFAS in the home by touching products (such as carpet) with PFAS and then putting their hands in their mouths.

### **How can PFAS affect my health?**

Some, but not all, scientific literature suggests that certain PFAS may affect a variety of systems in the body. Additional research is needed to better understand possible human health effects from exposure to PFAS in water and food.

Scientists are not yet certain about the possible health effects resulting from human exposure to PFAS at levels typically found in our food and water. Some, but not all studies in humans have suggested that certain PFAS may affect the developing fetus and child. Potential health effects from exposure to PFAS may include:

- Affect the development of unborn babies and breastfeeding infants — including possible changes in growth, learning, and behavior
- Decrease fertility and interfere with the body's natural hormones
- Increase cholesterol
- Affect the immune system
- Increase the risk of cancer

More research is needed to confirm or rule out possible links between health effects of potential concern and exposure to PFAS. At this time, we cannot tell if drinking well water in Moose Creek could be causing any current health problems — or if it will cause problems in the future.

### **How can I tell if I have come into contact with PFAS?**

PFAS can be measured in the blood, however, there are some limitations on blood tests to consider. Individuals who feel they may have been exposed to high levels of PFOA or PFOS and would like to have their blood levels measured should keep in mind that this is not a routine test that health care providers offer. The test results will not provide clear answers for existing or possible health effects. Individuals who feel the need to be tested should consult with their

health care provider, local and state health department or other health professionals on how to move forward. The body's natural elimination processes are the only way to remove PFAS from the body.

### **What is the health advisory for PFOS and PFOA?**

The U.S. Environmental Protection Agency (EPA) has set a lifetime health advisory (LTHA) level for PFOS and PFOA — individually or combined— of no more than 0.07 micrograms per liter of water (µg/L or ppb-parts per billion). This amount is the same as 70 nanograms of PFOS or PFOA (or the 2 combined) per liter of water (ng/L or ppt-parts per trillion). The LTHA is designed to protect people from contact with PFOS and PFOA in drinking water — particularly unborn babies and infants (the populations most likely to be affected by exposure to PFOS and PFOA).

## **Safety Information for Moose Creek Residents**

### **Can I drink my well water? What about my pets?**

If levels of PFOS or PFOA (or the 2 combined) are at or above the health advisory level (0.07 micrograms per liter), do **not** drink your tap water or use it to prepare baby formula. Also avoid giving it to pets and other animals.

### **Is it safe to cook with my well water?**

If your well water has levels of PFOS or PFOA (or the 2 combined) at or above the health advisory, do **not** use your well water to cook — even if you heat or boil it first. Boiling water does not remove PFOS and PFOA.

### **Is it safe to shower, take baths, and brush my teeth with my well water?**

It is very unlikely that showering or taking baths with well water could cause any health problems. This is because:

- Your skin does not absorb (take in) enough PFOS and PFOA to cause problems. PFOS and PFOA also do not irritate the skin.
- PFOS and PFOA do not move easily from water to air — that means it is unlikely that you will breathe it in when using well water.

It is safe to shower and bathe in PFAS- contaminated water. If your water contains PFAS, particularly if levels exceed the LTHA, you can reduce exposure by using an alternative or treated water source for brushing teeth, and any activity that might result in ingestion of water.

### **Can I clean, wash dishes, wash clothes, and rinse food with my well water?**

It is safe to use well water to clean your house, wash dishes, and do laundry. However, we recommend that you rinse food with clean water.

**Can I breastfeed my child if I have been drinking my well water?**

Breastfeeding is linked with numerous health benefits for both infants and mothers. At this time, it is recommended that nursing mothers continue to breastfeed. The science on the health effects of PFAS for mothers and babies is evolving. However, given the scientific understanding at this time, the benefits of breastfeeding outweigh any known risk. To better weigh the risks and benefits of breastfeeding, please talk to your doctor.

**Is it safe to water my vegetable garden with my well water?**

We do not have a clear answer to this question at this time. Some studies have shown that vegetables grown in soil with high levels of PFAS may absorb the chemicals. But this could depend on a lot of different factors (e.g., level of PFAS in water, the type of PFAS contamination, the amount of garden watering, and the type of produce grown).

One recent study showed that garden plants watered with water contaminated with PFAS took in only very small amounts of the chemicals. The study also noted that the health benefits of eating fresh vegetables outweigh any health risks from small amounts of PFAS.

Soil particles can stick to plants, vegetables, and fruits. Low-lying plants, leafy vegetables (e.g., spinach and lettuce) and root crops (e.g., potatoes and carrots) are more likely to have soil particles on them and possibly contribute to human exposure through incidental ingestion. Some studies show that PFAS can accumulate at low levels in plant roots. Uptake of contaminants by the roots of a plant may move into other portions of the plant but usually at even lower concentrations. Your exposure to PFAS through garden vegetables is not likely to be significant compared to other primary exposure routes such as drinking contaminated water.

In the end it is up to you. Some people living in Moose Creek may feel more comfortable using a different water source with confirmed lower PFAS levels for their vegetable gardens. However, if you choose to use your well for your garden, we recommend you wash your vegetables with clean water and peel root vegetables.

**Is the fish from Garrison Slough safe to eat?**

The Section of Epidemiology (SOE) does not currently know the extent of PFAS contamination in the fish in Garrison Slough. Eielson Air Force Base officials are working to collect fish from the slough and test for PFAS. When this information is available, SOE will work with Eielson officials and other agencies to develop and disseminate guidance and recommendations for fish consumption.

## Next Steps

### How often will my well water be tested for PFAS?

The Air Force, in collaboration with the Alaska Department of Environmental Conservation and EPA have designed a sampling protocol to monitor PFAS concentrations in Moose Creek wells over time, and ensure that the water of these wells remains safe for consumption.

How often the wells are checked will depend on how high the levels of PFAS are..

### What is the Alaska Section of Epidemiology doing to address concerns about PFAS in drinking water?

The Section of Epidemiology is taking steps to protect Moose Creek residents, including:

- Working with ADEC and the Agency for Toxic Substances and Disease Registry (ATSDR) to understand how PFAS from well water may affect people living in the community
- Finding more information about PFAS and updating our recommendations as data become available.

### Where can I get more information?

- To learn more about health effects of PFAS, contact the Alaska Section of Epidemiology at **907-269-8000**.
- To learn more about well water testing, contact the Alaska Department of Environmental Conservation at **(907) 451-2131**.
- If you have health concerns about PFAS, please talk with your health care provider.

You can also find additional information in the following resources:

- ATSDR's PFAS web page:  
<https://www.atsdr.cdc.gov/pfc/index.html>
- PFOS and PFOA Drinking Water Health Advisories (EPA)  
[https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories\\_pfoa\\_pfos\\_updated\\_5.31.16.pdf](https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf)
- Alaska Environmental Public Health Program  
<http://dhss.alaska.gov/dph/Epi/eph/Pages/default.aspx>