CO SCOPE Public Meeting Questions and Answers April 23-24, 2024

PFAS Blood Testing and Health Effects

Question	Answers
How can people who didn't participate in the study get tested for PFAS exposure?	People who didn't participate can talk to their health care provider about ordering a blood test for PFAS. Providers who want to order a test should use ICD-10 diagnosis code Z13.88. If ordering a test through Quest, use Test Code 39307 and CPT code 82542. If you are interested in getting a blood test for PFAS, ask your healthcare provider: • **What will the test tell you?** Testing can tell if a person's blood PFAS level is lower than, the same as, or higher than the blood levels of other people living in the United States. It cannot show whether PFAS caused a person's health problem. The test also would not determine treatment or next steps. • **Will your insurance cover the blood test?** Blood tests for PFAS can be expensive and may not be covered. • **Can your health care provider order the blood test for you?** Depending on what lab your health care provider uses, you may have to order your own blood test. • **Are at-home tests an option?** At-home blood tests for PFAS are available. If you decide to use one, know they have the same limitations as tests ordered by a heath care provider or obtained at a lab. Additional information about PFAS blood testing can be found here: bit.ly/PFAS-Exchange-blood-testing
What is the relationship between high blood PFAS results and autoimmune diseases?	There are many types and different causes of autoimmune diseases. The C8 Science Panel previously reported a "probable link" between PFOA exposure and ulcerative colitis, one type of autoimmune disease. The C8 study also reported a probable link between PFOA exposure and thyroid disease, which in some cases (or people) may have an autoimmune origin. More research is needed to better understand the association between levels of other PFAS exposures and increased risk of autoimmune diseases.

Can PFAS exposure alter DNA since it is in male sperm?	Currently, there is no supporting evidence about genetic changes or impacts on genetic code from PFAS exposure.
Is any effort being made to require insurance companies to include coverage for screening related to health effects?	Many health care plans are state-specific. The Washington State Department of Health did a survey of all their major insurance companies and found that some cover health screenings related to PFAS exposure and blood tests for PFAS. Colorado plans to survey health insurance companies about coverage related to PFAS exposure. Colorado will begin that work in 2025. You can read more about Colorado's efforts to address PFAS contamination in the 2024 PFAS Action Plan.
What is the relationship of PFAS in our blood to being on medications such as blood thinners (e.g., Warfarin or Plavix)?	Currently, there is no data about how PFAS might be specifically affecting the effectiveness or safety of blood thinning drugs in humans. It's important to work with your healthcare provider when it comes to making medical decisions. Research surrounding PFAS and health is moving quickly. We will continue to update our website with emerging data and resources. For more information, please see the following article: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1942100/
Has PFAS exposure been linked to increased mortality?	CO SCOPE is focusing on chronic diseases because they can impact mortality rates. Some studies show that health outcomes related to PFAS exposure, such as higher cholesterol, may increase the risk of more severe illness, like cardiovascular disease, if not addressed. It is important to note that not all people have the same risk. Age, gender, genetics, lifestyle, and other factors play a role in how exposure to PFAS affects health. **References:** C8 study http://www.c8sciencepanel.org/ See resources at https://www.co-scope.org/resources To learn the story of how PFAS became a known contaminant, read Rob Bilott's book, *Exposure*, or watch the movie, *Dark Waters* (both available at local libraries).

PFAS Levels in Blood

Question	Answers
How do PFAS levels decrease in your body over time?	For most people, the main ways PFAS are removed from the body are through urine and feces. Blood donation is another way PFAS can be removed from the body. Not all people have the same risk. Age, gender, genetics, lifestyle, and other factors play a role in how quickly PFAS are removed from the body. Even men and women living in the same household can have different levels of PFAS in their blood. Because women have more ways to pass PFAS through their bodies than men, including menstruation, breastfeeding, and childbirth, women may have lower levels than men even after having similar exposures to PFAS.

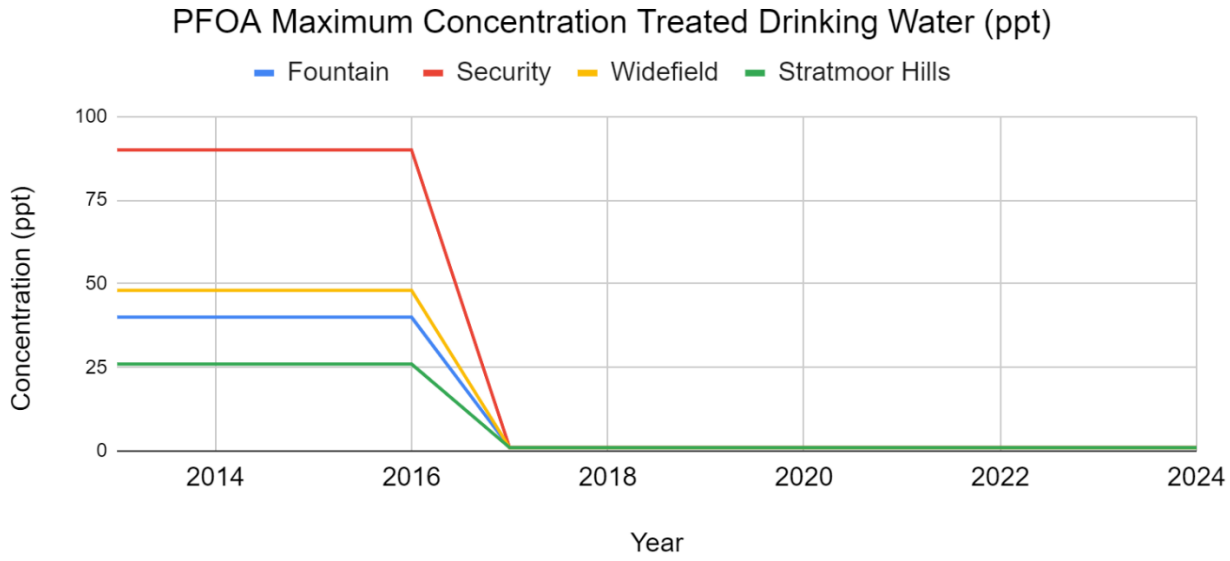
My lab reports show levels of certain PFAS increased between PFAS-AWARE and CO SCOPE. Do you know why that might be the case?	This question is difficult to answer without looking at the specific individual's blood PFAS levels.
	
	However, a few possible reasons might be:
	● Improved technology in lab tests between the first blood draw and second blood draw
	● Differences between labs used in the two studies
	● Ongoing exposures to PFAS
	  ○ You can be exposed to PFAS through consumer products, occupational hazards, and eating or drinking contaminated food.
	  ○ Visit this website to learn more about how to reduce exposure: https://cdphe.colorado.gov/pfas-health
	● Day to day variability of PFAS concentrations in blood may occur but are thought to be minimal

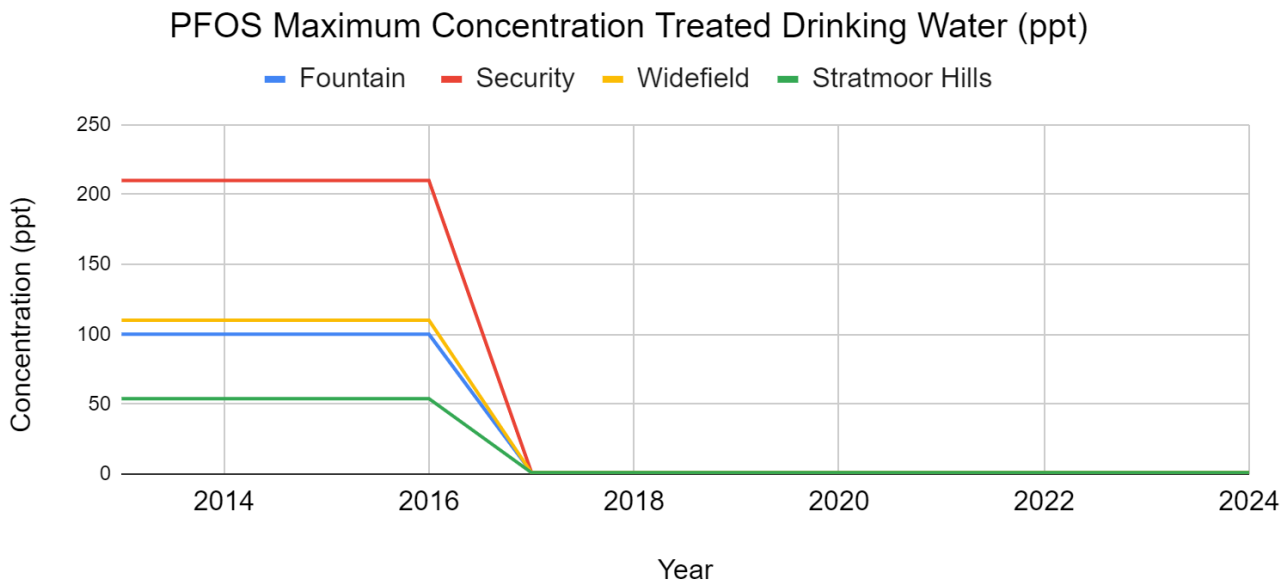
Will CO SCOPE study results help us understand the decline of PFAS in blood in the Fountain Valley community?	Yes. CO SCOPE is the third PFAS research study conducted in the Fountain Valley community in the last 7 years. Each study had different eligibility requirements. Some people participated in multiple studies, but each study was a unique group of people. When we look at the average PFAS levels in blood over time from the three studies we see a steady decline over time. This decline is likely because the main source of PFAS exposure in Fountain Valley was through drinking water. After the contamination was found, water utilities temporarily changed the drinking water to different water sources (for example from Colorado Springs) that did not have PFAS contamination from Peterson Space Force Base. In the last few years, the Fountain Valley water utilities have upgraded their water treatment systems so that they could use their original sources of water (i.e., local groundwater and municipal wells). Now, these water utilities supply drinking water that does not have detectable PFAS.

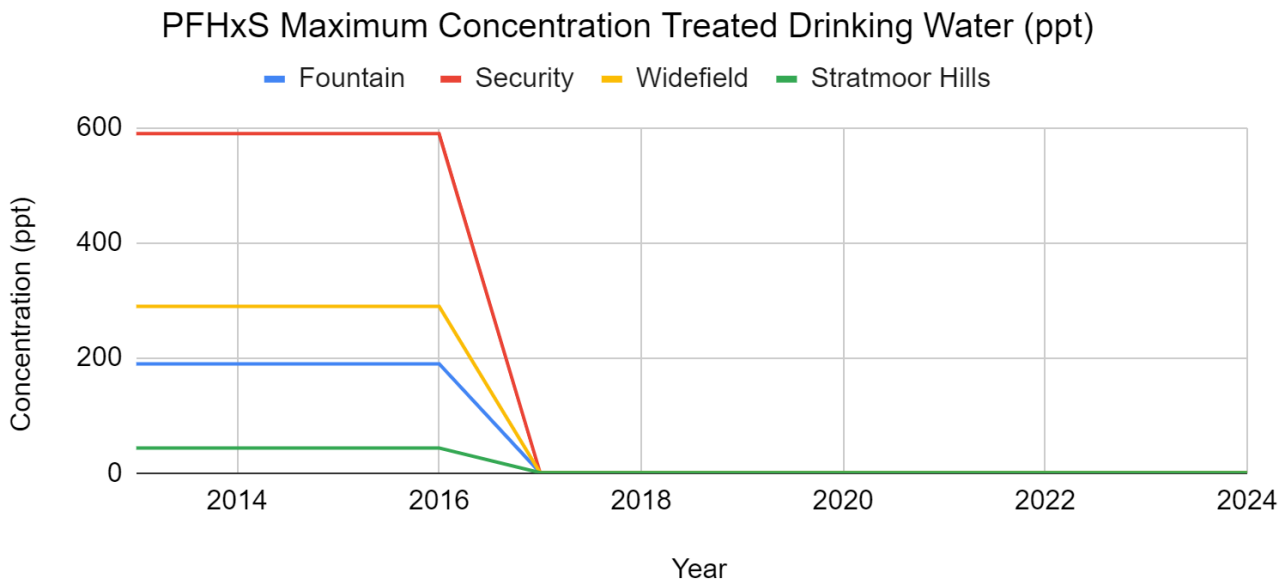
PFAS Exposure in Fountain Valley

Question	Answers
Do we know when the drinking water was contaminated?	We do not know how long the drinking water sources have been contaminated in the Fountain Valley communities. We do not know what year the public water systems wells became contaminated. The contamination goes back at least as far as 2013 based on sampling results released by the US EPA in 2016. If your drinking water comes from Fountain, Security, Widefield, or Stratmoor Hills public water systems, the water is no longer contaminated with detectable levels of PFAS. Beginning in 2016 when the contamination was first discovered, the water systems and the Department of Defense moved to using uncontaminated water sources and installed water treatment effective at removing PFAS.
Has Peterson stopped using AFFF foam?	In 2018, the Department of the Air Force released an official Air Force Instruction for the Fire and Emergency Services Program. The document prohibits the use of AFFF for training purposes. Peterson Space Force Base stopped using AFFF for training exercises but kept it on hand for use only during emergency response. The 2020 National Defense Authorization Act requires the Department of Defense to phase out PFAS-containing AFFF by October 1, 2024. PFAS-containing AFFF will be replaced with a new PFAS-free alternative. According to current research, fluorine-free foam breaks down in the environment, does not accumulate in the body, and does not cause toxic effects.
Is there concern for PFAS found in plumbing systems?	According to Dr. Chris Higgins of the Colorado School of Mines, there is some anecdotal evidence to suggest small amounts of PFAS stick to water pipes. However, this small amount is likely a minor source of PFAS exposure since it is in much smaller amounts of PFAS levels in the drinking water compared to the water in 2016. If there are any new substantive findings on this topic in the future, we will update community members. A recent study indicated it is unlikely for PFAS in water or soil to permeate undamaged pipes made of polyethylene (PE) and polyvinyl chloride (PVC) (Are PFAS an issue for permeation of plastic water pipes). If you have further concerns, please understand household plumbing is not the water provider's responsibility and that local water districts cannot provide PFAS testing at all homes. Water users can submit a sample from their homes to a lab of their choosing.

Has any testing been done with water contamination caused by the Fort Carson Fire Department?	Fort Carson finished a Preliminary Assessment and Site Inspection in 2022 that confirmed PFAS contamination on the base. They are currently working through additional investigation and determining next steps in remediation. If you want more information, reach out to: Madeline Manfre (madeline.manfre@state.co.us)
Should we still be concerned about PFAS even with water districts treating this water?	There is no longer a concern about PFAS in public drinking water in the Fountain Valley communities because PFAS levels are now below the new EPA standards. However, there is still potential that surface water and groundwater are contaminated in this area. There are a few steps you can take to further reduce your exposure: ● If you are on a private well, we recommend testing your water and maintaining your reverse osmosis and other treatment systems. ● If you fish or hunt in the area, be aware for posted guidance. ● If you have a backyard garden, consider reviewing CDPHE's homegrown produce fact sheet.
Have any other water districts in this area reported PFAS contamination that may be from the PFAS in the groundwater eventually reaching their water years later?	CO SCOPE is not currently investigating when a potential or known PFAS source may have reached other water districts in Colorado. Under EPA's final rule, testing and monitoring will be required for water providers. The testing data will be available to the public. CDPHE can support impacted water providers to do additional testing over time with its PFAS Grant Program.
What about downstream reservoir water? Will it be contaminated by PFAS when surface water or groundwater reach it?	Whether PFAS is detected in downstream reservoirs depends on the amount of PFAS in the surface water and/or groundwater it receives and other sources of PFAS that could be impacting the reservoir. If there are no other sources, it is likely that dilution will lower observed concentrations at the reservoirs.
How long before the discovery of PFAS in drinking water (2016) was the Air Force using AFFF?	PFAS have been used since the 1940s. Peterson Space Force Base's records indicate that training of firefighters with aqueous film-forming foam (AFFF) began in the 1970s. Over decades of use, PFAS entered the groundwater and eventually contaminated the public water system wells west and south of the base.

Do blood levels change based on where we get our water from? **How do we know what water concentrations were before treatment was installed?**	We know that PFAS blood levels are related to the levels of PFAS in drinking water. For example, we found that people living in the Security Water District had higher levels of PFAS in their blood compared to those living in the Fountain Water District. Security also had the highest PFAS levels in their water compared to other water districts in the area. The three charts below indicate local water concentrations for PFOA, PFOS, and PFHXS since 2013 for each of the four impacted water districts. Water concentrations may go up and down slightly over time based on factors like water use, the changeout of treatment media used to remove PFAS, and time of year. These charts are meant to show the historic range of PFAS concentrations when contamination was discovered and how these concentrations were removed with the installation of PFAS treatment. Currently, all four water systems are treating their drinking water with the best technology available, showing PFAS below the level the labs can detect which is also below EPA's new drinking water standards. 


PFOS Maximum Concentration Treated Drinking Water (ppt)
Fountain
Security
Widefield
Stratmoor Hills
250
200
150
100
50
0
Concentration (ppt)
2014
2016
2018
2020
2022
2024
Year

General PFAS Exposure

Question	Answers
How can we reduce our exposure to PFAS, especially when it comes to cookware and other products we use every day?	You may want to consider reducing your use of products that contain PFAS. ● PFAS may be in stain-resistant carpets, upholstery, and treatments, waterproofing sprays, non-stick cookware, ski wax, food wrappings, microwave popcorn bags, and personal care products. ● Avoid products that contain "PAP" (poly-fluoroalkyl phosphate esters) or “PFTE” (polytetrafluoroethylene) and ingredients that include the words “fluoro” or “perfluoro.” ● Read the labels to identify these chemicals. A “green” label does not assure a product is free of PFAS. ● Ask retailers and restaurants if their wrappings are PFAS-free. See the *How to Reduce Your Exposure to PFAS* for more information and guidance.

What are the options for PFAS filtration if I get my drinking water from a private well?	Ion exchange treatment, reverse osmosis, and granular activated carbon filtration are the best treatment options for removing PFAS from water. All are effective at removing long-chain PFAS from the water, but ion exchange and reverse osmosis tend to be better with short-chain PFAS. For **all filter types**, it is important to replace filters as directed by the manufacturer. Systems may need more frequent filter replacement in homes where there is high water use or high PFAS contamination. If you would like to know more about selecting a filter, including average cost differences, please see the *Drinking Water: Choosing a Filter* handout. Also, seeking information from local water professionals about environmental factors may influence your decision for which filter to use. For example, activated carbon may not work as well or as long if water has a high level of nitrates. Most of the **private wells** in the area have been tested by the Department of Defense. If your house receives water from a private well, please contact CDPHE and they will connect you to a contact at the Department of Defense for testing purposes or inquiries related to previously collected data. Additionally, private well testing is available through the CDPHE PFAS Grant Program. Information about the program, including application materials can be found here: https://cdphe.colorado.gov/pfas-projects.
Are there any studies looking at PFAS contamination in livestock, crops, and homegrown produce?	It is important to note that fruits and vegetables are part of a healthy diet, yet produce that are grown with PFAS-contaminated soil or water may absorb some of the chemicals. If you know your water is contaminated, eating less of the produce you grow can help you reduce your exposure to PFAS. Some studies show leafy vegetables (such as lettuce and kale) and root crops (such as potatoes and carrots) take up more PFAS than fruits (such as tomatoes and strawberries). Though we know PFAS can build up in animal products, scientists don't have a clear understanding of the relationship between the levels of PFAS in water and the levels in meat, eggs, or milk. Check the *PFAS and home-grown produce* provided by CDPHE to learn more.

How do we trust sample collection and laboratory analysis conducted by public water systems?	All drinking water samples at public water systems are collected by a certified operator or someone under the supervision of a certified operator. Drinking water samples must be collected at the required locations and at the minimum indicated in state and federal regulations. Public water system monitoring requirements for PFAS will be based on system size, source water type and previous results. For rules regarding frequency of PFAS initial monitoring, please see page 2 of EPA's Final PFAS National Primary Drinking Water Regulation: Monitoring and Reporting, April 2024. Sampling must be done in accordance with a written operating plan. Failure to meet these standards, or submitting false or misleading information may result in operator disciplinary action, including termination. Sample analysis must be conducted by laboratories that have been certified by EPA or the State. This includes public water systems that have their own laboratories. The certified laboratories must meet required credentials and requirements, and use an EPA-approved analytical method to conduct the analysis. All public water systems will be required to monitor and specify levels of PFAS in drinking water according to the US EPA's new drinking water standards. For more information about these regulations, please see: https://www.epa.gov/pfas/key-epa-actions-address-pfas

Questions about Study Logistics

Question	Answers
When will we see the analysis from the latest blood draws data?	As of March 2024, we have received all blood PFAS results from the laboratory and we have mailed results letters to all study participants. All the sites (i.e., CA, CO, MA, MI, NJ, NY, PA, and Pease in NH) are preparing the final dataset of more than 6,000 adults and children for data analysis. We will be exploring associations between PFAS exposure and health conditions over the next 2 to 3 years and then publishing results in scientific journals. We will let you know when these results are available via email and our website. When we have substantive results to report we will have future public meetings to discuss study findings, so please make sure the contact information we have for you is updated.

Was there a minimum time or amount of exposure to qualify for the study?	To qualify for the study, you had to live in Fountain, Security, Widefield or Stratmoor Hills from 2006-2015 because this was when PFAS was known to be in drinking water and when residents of this area were exposed. PFAS may have been in the water before 2006.
How did you select the 1000+ study participants?	All participants were volunteers that met our study's eligibility criteria: individuals who were aged 4 or older, lived in the study area between 2006 until 2015, never worked in commercial or manufacturing occupations that use PFAS, and were not a firefighter were eligible to participate in CO SCOPE.
Did the volunteers who participated express concerns about feeling the effects of PFAS already?	Many participants expressed concerns about how PFAS might have affected their health to our study staff. Other participants were concerned about the rates of certain diseases among their neighbors. It is difficult to know whether any individual's health condition was caused by their PFAS exposure. However, our analysis of the data collected in this large study will allow us to determine whether certain diseases occurred more frequently among people with higher PFAS levels.
Can an individual still get tested now for their first PFAS blood level measurement through the study?	The study finished enrolling people on September 30, 2023. Since the data collection period of the CO SCOPE study is over, we can no longer conduct PFAS blood testing. There are independent labs and testing available, but it may be expensive. Please review the handout *PFAS blood testing: What you need to know* for more information about how you can order it from your clinician.
When the results come in for all 4 study communities, will there be information specific to communities?	Most of the health reports will use the data from all the study sites nationwide. There will be some Colorado-specific results. For example, we will have estimates of PFAS levels in water we can share to update previous work, i.e., the information from the research paper published in 2020 by the PFAS-AWARE team (see below for title). This article shows how the highest PFAS water concentrations are closest to Peterson Space Force Base. The CO SCOPE website also has slides from when we did a community presentation on these results in 2018-2020 (https://www.pfas-fvc.org/pfas-aware). Barton KE, Starling AP, Higgins CP, McDonough CA, Calafat AM, Adgate JL. Sociodemographic and behavioral determinants of serum concentrations of per- and polyfluoroalkyl substances in a community highly exposed to aqueous film-forming foam contaminants in drinking water. Int J Hyg Environ Health. 2020 Jan;223(1):256-266. doi: 10.1016/j.ijheh.2019.07.012. Epub 2019 Aug 20. PMID: 31444118; PMCID: PMC6878185. (https://pubmed.ncbi.nlm.nih.gov/31444118/).

What access will participants and the public have to the data and information about health impacts from this study? **Will the study send out emails to study participants with links or announcements for these published articles?**	We understand that participants want to know when results will be published in the journals. It is important to us to make sure study participants have access to this information. The latest scientific information about this study will include: **Data analysis:** The Multi-Site Study will take a few years to complete the health effects analyses for the nationwide study. This study is likely not large enough for examining rare diseases that may take a long time to develop (such as cancer), but we will report on associations between PFAS and many other common health conditions. **Release of information:** We will be making periodic public announcements about published articles by email and on our websites: www.co-scope.org or www.pfas-fvc.org*. We also expect to have more episodic public meetings to discuss findings with participants and interested citizens. **Email/Mail:** After we have sent emails about the published information, we will be able to provide PDFs of these articles via email to those who request them directly from us. We will also print and deliver articles or announcements via US mail to those who request them. **Distribution to local libraries:** Access to several scientific journals is possible through online systems at local libraries. The journals we publish our articles in may not always be accessible at local libraries, so we will provide published articles at local libraries for "in-house review". Public checkout will not be possible, but you will be able to read them at the library and make paper photocopies for personal use. **Other websites to watch:** CO Department of Public Health and the Environment (CDPHE): https://cdphe.colorado.gov/pfas-health Environmental Protection Agency (EPA): https://www.epa.gov/pfas/key-epa-actions-address-pfas