

Testimony to the Interim Committee on Water and Natural Resources
The Health Effects of PFAS
By Wendy Johnson MD MPH

Madame Chairman, Members of the Committee

Thank you so much for making time for this important subject.

As you know, PFAS are a group of over 15,000 chemicals, with more being developed every day. Testing exists for only a small number. The most extensively studied are PFOA, better known as Teflon and PFOS, used in firefighting foam. We have testing capability and studies on safety for a handful of others, but the industry is creating new PFAS at a rapid rate as older chemicals become regulated. PFAS are used oil and gas extraction, for data centers and in the electronics industry, and in a wide array of consumer products from cookware to carpeting to toilet paper to clothing.

They are called forever chemicals because they don't break down over time and our bodies can't metabolize them and can only excrete them very slowly. This means even low levels of exposure over long periods of time can pose significant risk. Most scientists think there is no safe level of PFAS for humans. The EPA recognized this when it set very low drinking water standards at no more than 4 parts per trillion. Still, studies have shown that PFAS are found in 97% of humansⁱ and 45% of drinking water supplies in the US.ⁱⁱ

PFAS are persistent, bioaccumulative and toxic.

Finding PFAS in water therefore at any level is a health threat for populations that have to drink that water over years or decades as the chemical accumulates in their bodies.

Bioaccumulation, or build-up of chemical deposits in the body, occurs especially in the liver, kidneys and blood. Scientists have speculated that PFAS may be playing a role in the recent increasing in rates of fatty liver disease in people who have no risk factors. PFAS chemicals can also have a multiplying effect, so even when each individual chemical is present at low-levels, mixtures of PFAS can have significantly higher toxicity.ⁱⁱⁱ

So how do we get exposed?

Ingestion is the most significant exposure, either through food or water.

Up to half the US population receive drinking water with detectable levels. Of note, boiling doesn't help and can actually concentrate PFAS more. Most popular household water filters like Brita do not remove PFAS effectively.

Probably the second most significant exposure is through food. Either because it was grown in contaminated soil, irrigated with contaminated water, or was packaged in PFAS

containing materials. PFAS also accumulates in fish living in contaminated rivers or lakes, so eating those fish is another source.

Many workers are at significant risk of occupational exposures, especially firefighters, oil and gas workers, those in chemical manufacturing or waste management, and workers at defense facilities like Los Alamos National Labs or military bases.

PFAS pass through breast milk and the placenta, and pregnant women and babies are especially susceptible to their effects.

Less significant exposures for most of us include inhalation of contaminated dirt or dust, and direct contact or dermal exposure, with cleaning products for example, or even from your smart watch when you're exercising and sweating.

It's important to recognize that many people have multiple exposure pathways—through water and the food they eat for example, or occupational exposures plus water.

PFAS chemicals cause health problems by promoting inflammation, causing oxidative stress, interfering with the function of our bodies' natural hormones, and causing immune dysfunction.

In other words, they are cancer causing, endocrine disrupting, and they make us more susceptible to infection and chronic disease. Let me go over each category.

PFAS Chemicals have been linked to **cancers** across almost every organ system.

A recent NIEHS-funded study found that US counties with PFAS contaminated drinking water had higher cancer incidences, with higher rates associated with more contamination. The link to the study has been deleted from government websites, but it found up to a 33% higher risk of mouth and throat cancers, a 12% higher risk of digestive system cancers, a 10% increased risk of endocrine system cancers and a 6% higher risk of lung cancer and higher rates of leukemia, bladder, brain and thyroid cancers. The researchers concluded that drinking water contamination alone leads to over 6800 cancer cases a year. ^{iv}

Previous studies have found links to melanoma as well as kidney, breast and testicular cancers. Of particular concern are links to early onset colon and liver cancer in younger individuals.

When PFAS act as **endocrine disruptors** they cause:

- Hypothyroidism
- Higher Rates of Diabetes ^v
- Late onset of puberty in girls
- Reduced fertility

PFAS can **suppress immune systems** and cause:

- Decreased immune response to vaccines,
- Increased susceptibility to infections.

PFAS can exacerbate or cause **chronic illnesses** through

- High cholesterol leading to heart disease and strokes
- Liver Damage
- Kidney disease
- Obesity
- Colitis

Children and pregnant women are particularly susceptible and PFAS have been linked to:

- Low birth weight
- Pregnancy-induced hypertension
- Neurodegenerative and developmental issues in children

As I previously stated, the industry is developing new chemicals at a rapid rate, and every one of those new chemicals might have new and different health effects. The Guardian reported last December that the EPA was silently fast-tracking the approval of new PFAS chemicals without proper research into health effects in order to help the data center and semiconductor industry—a major source of unregulated and unmonitored PFAS.^{vi vii}

Generally, it takes years or even decades to understand the effects of new chemicals on human health, especially their potential to cause cancer. Think about the extensive research required to make the link in the case of tobacco, asbestos or benzene. I am especially concerned about our ability to determine the ongoing health effects of PFAS in the face of the drastic cuts to the NIH and our nation's research infrastructure.

In my practice in Española, I see a lot of the men who worked at Los Alamos from the 1970s to the 2000s. They were told that their protective personal equipment would keep them safe, yet hundreds of them suffer from lung diseases and cancer caused by toxic occupational exposures. More stringent limits weren't set at the lab until 1996, but even after that, many workers continued to have unsafe exposures as our knowledge evolved.

We are told that oil and gas industry and data centers create jobs, but at what cost? When the research finally catches up to tell us the true effects of long-term exposure to these chemicals, the damage will have been done. It will be too late to undo it. The state will be left with the costs of mitigation and clean-up, and working-class New Mexicans will be stuck with the health care costs. Already the state has spent \$25 million dollars on the PFAS contamination disasters in Curry County and around La Cienega.

Earlier this year, the US EPA rescinded a proposed rule that would have established national limits on PFAS discharges from chemical manufacturers and other industries into rivers, lakes, and streams under the Clean Water Act. Given the federal government's abdication of responsibility to regulate or research these dangerous, highly toxic chemicals, it's even more imperative that the State take swift action to protect all New Mexicans from the devastating health effects of PFAS exposure.

Specifically, the legislature should do everything possible to prevent PFAS from further contaminating our surface and ground water, protect populations known to be at risk, and remediate already contaminated areas.

Concrete measures include setting enforceable drinking water standards, banning or restricting PFAS in consumer products and food packaging, regulating industrial and waste discharges, requiring disclosure of toxic chemicals used in risky industrial practices like fracking, and mandating public notification and cleanup.

The state should also conduct more aggressive testing of water systems, waterways, and communities. In light of the heavy metals recently found in Mora's groundwater, I'm concerned about those who already suffered devastating fires and now may have to deal with an aftermath of toxic chemicals. When PFAS are detected, those with contaminated water or high blood levels should be supported in every way possible to prevent further exposure and facilitate regular health screenings and prevention. New Mexico can become a national leader in protecting its citizens from this toxic scourge.

Thank you, Madame Chair and Committee Members, for the opportunity to testify today. I am so thankful and encouraged that the Committee has dedicated time to learning about these issues and look forward to the Legislature taking swift action.

ⁱ Lewis RC, Johns LE, Meeker JD. 2015. Serum Biomarkers of Exposure to Perfluoroalkyl Substances in Relation to Serum Testosterone and Measures of Thyroid Function among Adults and Adolescents from NHANES 2011–2012. *Int J Environ Res Public Health*. 12(6): 6098

ⁱⁱ Kelly L. Smalling, Kristin M. Romanok, Paul M. Bradley, Mathew C. Morriss, James L. Gray, Leslie K. Kanagy, Stephanie E. Gordon, Brianna M. Williams, Sara E. Breitmeyer, Daniel K. Jones, Laura A. DeCicco, Collin A. Eagles-Smith, Tyler Wagner, Per- and polyfluoroalkyl substances (PFAS) in United States tapwater: Comparison of underserved private-well and public-supply exposures and associated health implications, *Environment International*, Volume 178, 2023, 108033, ISSN 0160-4120,

ⁱⁱⁱ Ríos-Bonilla KM, Aga DS, Lee J, König M, Qin W, Cristobal JR, Atilla-Gokcumen GE, Escher BI. 2024. Neurotoxic effects of mixtures of perfluoroalkyl substances (PFAS) at environmental and human blood concentrations. *Environ Sci Technol* 58(38):16774-84.

^{iv} Li, S., Oliva, P., Zhang, L. *et al.* Associations between per-and polyfluoroalkyl substances (PFAS) and county-level cancer incidence between 2016 and 2021 and incident cancer burden attributable to PFAS in drinking water in the United States. *J Expo Sci Environ Epidemiol* **35**, 425–436 (2025). <https://doi.org/10.1038/s41370-024-00742-2>

^v Sun Q, Zong G, Valvi D, Nielsen F, Coull B, Grandjean P. Plasma Concentrations of Perfluoroalkyl Substances and Risk of Type 2 Diabetes: A Prospective Investigation among U.S. Women. *Environ Health Perspect*. 2018 Mar 1;126(3):037001. doi: 10.1289/EHP2619. PMID: 29498927; PMCID: PMC6071816.

^{vi} <https://www.theguardian.com/us-news/2024/dec/19/epa-pfas-approvals-semiconductors>

^{vii} <https://www.theguardian.com/environment/2025/oct/04/pfas-pollution-data-centers-ai>

Other resources:

The National Institute of Environmental Health Sciences on PFAS:

<https://www.niehs.nih.gov/health/topics/agents/pfc#:~:text=People%20are%20most%20likely%20exposed,can%20build%20up%20over%20time.>

ATSDR/CDC page and PFAS and Health:

<https://www.atsdr.cdc.gov/pfas/index.html>

Press release on study linking PFAS to higher rates of many cancers:

<https://keck.usc.edu/news/study-links-pfas-contamination-of-drinking-water-to-a-range-of-rare-cancers/#:~:text=Press%20Release-.Study%20links%20PFAS%20contamination%20of%20drinking%20water%20to%20a%20range,and%20mouth%20and%20throat%20cancers.>

Yale experts explain PFAS Forever Chemicals:

<https://sustainability.yale.edu/explainers/yale-experts-explain-pfas-forever-chemicals#:~:text=VASILIOU%3A%20PFAS%20chemicals%20are%20not,%2C%20and%20kidneys%E2%80%94over%20time.>