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Memorandum

March 19, 2019

TO: Interested Persons

FROM: Andrea Denka, Research Analyst, 303-866-4781

SUBJECT: Per-and Polyfluoroalkyl Substances

Summary

This memorandum provides background on per-and polyfluoroalkyl substances (PFAS), associated health impacts, and the recent PFAS contamination in Colorado. This memorandum also provides information on PFAS in the United States, including the recently released Environmental Protection Agency (EPA) PFAS Action Plan, the Centers for Disease Control and Prevention (CDC) PFAS Health Effects study, and pending federal PFAS legislation.

Background

PFAS are synthetic chemicals that were developed in the early 1900s to coat products to make them heat-, water-, and oil-resistant. They have become prevalent in a variety of products used around the world, including: nonstick cookware, water-repellent clothing, stain-resistant fabrics, and firefighting foams. According to the EPA, there are over 4,000 different types of PFAS that have been manufactured in the last 70 years. Common type of PFAS are perfluorooctanic acid (PFOA), perfluorooctanesulfonic acid (PFOS), and GenX.

Health impacts. PFAS can cause health impacts, and the EPA estimates that 98 percent of the human population have PFAS present in their blood. These chemicals remain in the environment for an extended period of time. Humans can be exposed to PFAS through contaminated water, eating food packaged with materials using PFAS, and using products that are coated with PFAS. Some of the health issues PFAS can cause as they accumulate in a person's body include:

- low birth weight;
- increased risk of cancer;
- liver damage;
- immune disorders; and
- hormone disorders.

EPA public health advisory. In 2016, the EPA published a public health advisory on the dangers of the most commonly used types of PFAS, PFOA, and PFOS, in drinking water.¹ This advisory established the recommended levels of PFOA and PFOS in drinking water sources to be no more than 70 parts per trillion (ppt), and encourages public water systems to notify the public if either of these chemicals is found in local drinking water sources. Although PFOA and PFOS are no longer manufactured in the United States due to health concerns, they are still produced internationally, and imported products may contain them.

PFAS in Colorado

In 2016, public drinking water sources in El Paso County tested positive for high levels of PFAS after the federal Department of Defense (DOD) began testing military bases for contamination. The water sources identified with heightened levels served the areas of Fountain, Security, and Weld. The Colorado Department of Public Health and Environment (CDPHE) determined that PFAS from fire-fighting foam used at military bases, specifically the Peterson Air Force Base, leached into nearby ground water sources, for an undetermined amount of time, and contaminated the drinking water.

In response to this discovery, local water providers and the DOD warned residents and provided bottled water to affected communities. CDPHE released communications to the public, including information about the health impacts of PFAS, and how individuals can test and treat their water using filters if it was found to be contaminated. CDPHE also released an assessment of the impact of PFAS in El Paso County.²

In 2018, the U.S. Air Force announced plans to filter and treat the affected water sources to remove PFAS from contaminated sites in El Paso County. According to CDPHE, as of 2018, all public water systems had less than 70 ppt of PFAS detected. It should be noted that not all private wells have been tested. The U.S. Air Force and the DOD have stated that they plan on phasing out the use of firefighting foam containing PFAS.³

PFAS in the United States

EPA action plan. The EPA released a PFAS Action Plan in February 2019 to implement both short-term and long-term solutions for remedying PFAS contamination in the environment.⁴ According to the EPA, this plan gives states and local governments the tools to monitor, detect, and address these chemicals in the environment to prevent negative health impacts. The action plan also describes the steps the EPA is taking to address PFAS, including:

¹2016 EPA: PFOA & PFOS Drinking Water Health Advisories

https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf

²2016 CDPHE Southeast El Paso County Perfluorinated Chemicals Preliminary Assessment of Cancer and Birth Outcomes

https://www.colorado.gov/pacific/sites/default/files/PFC%20BWCancer_Final.pdf

³2016 Department of the Army Memorandum

<https://www.denix.osd.mil/army-pfas/the-army-addresses-pfos-pfoa/the-army-addresses-pfos-and-pfoa/limiting-use-of-aqueous-film-forming-foam-policy1/>

⁴2019 EPA PFAS Action Plan

https://www.epa.gov/sites/production/files/2019-02/documents/pfas_action_plan_021319_508compliant_1.pdf

- cleaning up PFAS contaminated areas;
- enforcing PFAS regulations;
- monitoring and addressing contaminations; and
- communicating to the public about the risks of PFAS.

The EPA also plans to develop a maximum containment level (MCL) for PFOA and PFOS. An MCL is a legal limit on the amount of substance that can be in public water systems according to the federal Safe Drinking Water Act. This regulation would allow legal action to be taken if the detected amount of PFOA and PFOS in a water source is above the MCL.

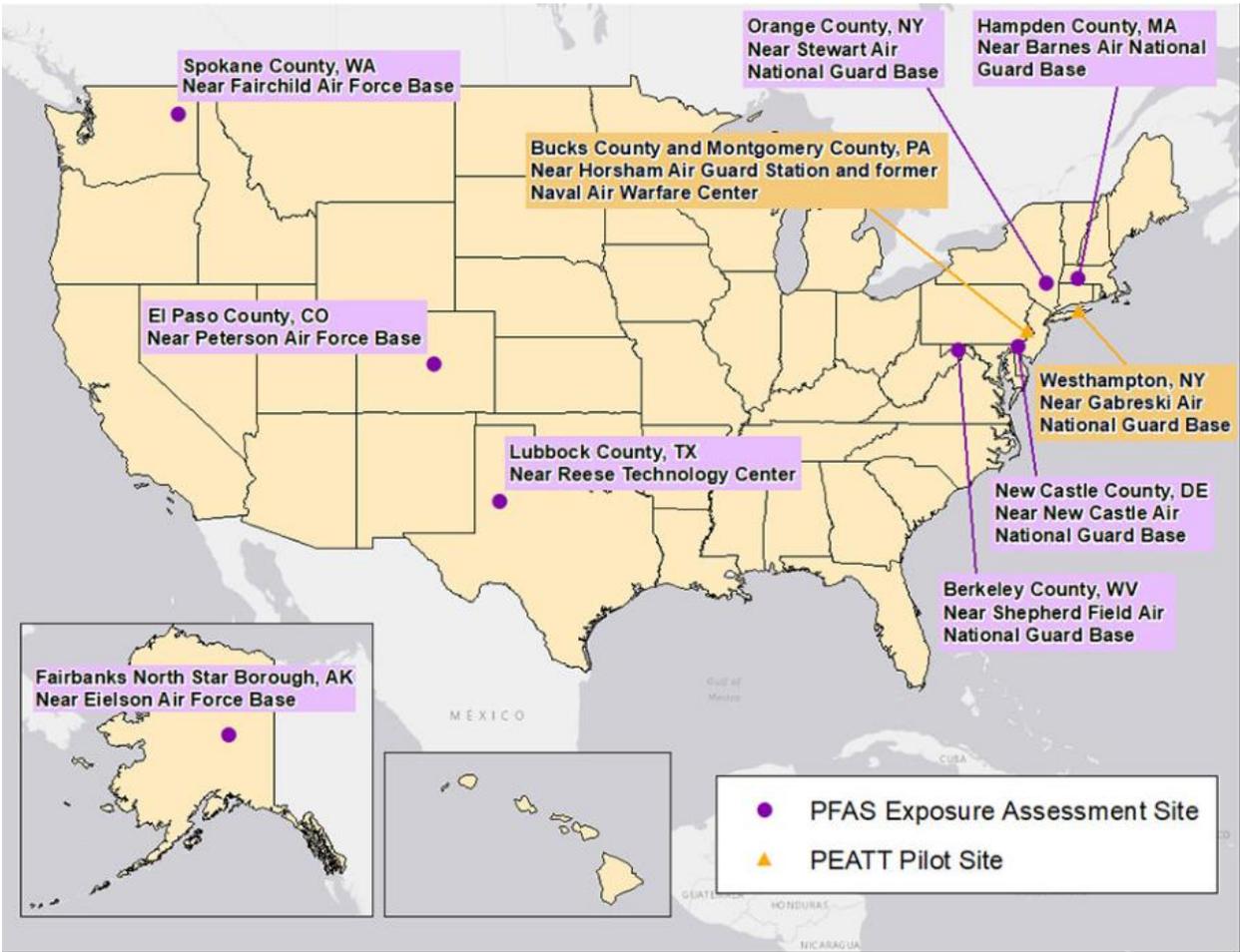
CDC multi-site health study. The CDC and the Agency for Toxic Substances and Disease Registry (ATSDR) are in the preliminary phase of conducting a national health study to learn more about the relationship between PFAS exposure and health outcomes.⁵ The CDC and ATSDR will evaluate the PFAS exposures at eight different sites around the county, including El Paso County, that have had known PFAS exposure in the past (see Appendix A). This assessment will:

- measure PFAS in the blood and urine of community members exposed to contaminated water;
- compare results from each community to PFAS levels in the general U.S. population; and
- identify and assess environmental factors that affect exposure.

PFAS federal legislation. [H.R. 535](#), the PFAS Action Act of 2019, was introduced in the U.S. Congress on January 14, 2019. This bill requires the EPA to designate PFAS as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, otherwise known as Superfund. Superfund allows the EPA to hold entities liable for environmental cleanup and to regulate compliance. H.R. 535 is pending before the Subcommittee on Railroads, Pipelines, and Hazardous Materials.

⁵ATSDR: Per- and Polyfluoroalkyl Substances and Your Health
https://www.atsdr.cdc.gov/pfas/related_activities.html

Appendix A
List of PFAS Exposure Assessment Sites in CDC Health Study



Source: Agency for Toxic Substances and Disease Registry; U.S. Department of Health and Human Services