



UTAH DEPARTMENT *of*  
ENVIRONMENTAL QUALITY

**WATER  
QUALITY**

Statewide Per and Polyfluoroalkyl Substances  
(PFAS) Monitoring Plan  
Health Advisory Panel, May 2, 2019

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# Per-and Polyflouroalkyl Substances (PFAS)

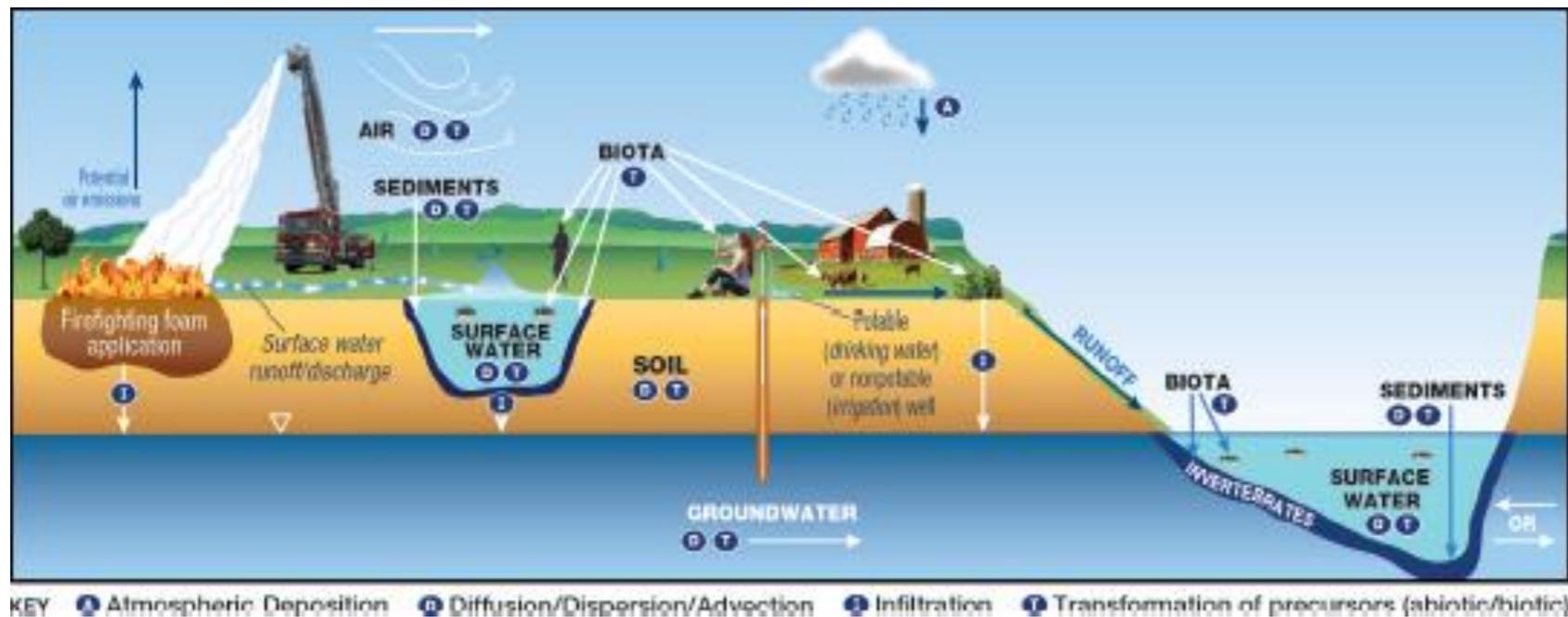
A class of man-made chemicals:

- Chains of carbon (C) atoms surrounded by fluorine (F) atoms, with different endings
- Complicated chemistry –thousands of different variations exist in commerce
- Widely used in industrial processes and in consumer products
- Some PFAS are known to be PBT:
  - Persistent in the environment
  - Bioaccumulative in organisms
  - Toxic at relatively low levels (ppt)

# Background

## Sources of PFAS

- Aqueous film forming foam (AFFF)
- Industrial Sources
- Wastewater Treatment Plants (Biosolids)
- Landfills



# Human Health Concerns

**Human health effects associated with PFAS in the general population and/or communities with contaminated drinking water include:**

- ↑ cholesterol
- ↑ uric acid
- ↑ liver enzymes
- ↓ birth weight
- ↓ vaccine response
- Thyroid disease
- Osteoarthritis
- Diabetes
- Testicular and kidney cancer
- Ulcerative colitis
- Effects in young adulthood from prenatal exposures
  - Obesity in young women
  - ↓ sperm count in young men



# EPA Takes Aim at PFAS

PFAS, or poly- and perfluoroalkyl substances, have become notorious as drinking water contaminants. They are used in a wide range of products and our exposure comes from multiple sources and routes. The two most common forms of PFAS are perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). DEQ will work with our water systems once the EPA action plan is finalized to determine if there are PFAS levels of concern that are affecting drinking water sources in the Utah.



On February 14, 2019, EPA established health advisories for PFOA and PFOS based on the agency's assessment of the latest peer-reviewed science. EPA is committed to supporting states and public water systems as they determine the appropriate steps to reduce exposure to PFOA and PFOS in drinking water. As science on health effects of these chemicals evolves, EPA will continue to evaluate new evidence.



## Health Effects

Exposure to these compounds has been linked to a number of health concerns including cancer, hormone disruption, liver and kidney toxicity, harm to immune system, and reproductive and development toxicity.



## Sources of Contamination

Many products are made with these compounds, including: food packaging; chemicals used for stain-resistant carpets, rugs, and furniture; non-stick cookware; outdoor gear with a "durable water repellent" coating; aerospace, medical, and automotive applications; and many specialty items such as firefighting foams, ski wax, and industrial applications.



## Drinking Water

Initial testing of some water systems in 2013-2015 revealed an estimated six million U.S. residents with drinking water supplies contaminated with PFAS. To provide Americans with a margin of protection from a lifetime of exposure to PFAS from drinking water, EPA has established the health advisory levels at 70 parts per trillion.

# 4years

It can take up to **4 YEARS** for the level of PFAS in the body to go down by half.

# 6million

**SIX MILLION** U.S. residents live with drinking water above PFAS safety levels.

# 4,000

PFAS is a group of more than **4,000** very stable synthetic chemicals.

# 70ppt

EPA's drinking water health advisory level is **70 PARTS PER TRILLION** for PFAS.



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# DEQ Monitoring Plan

- DWQ Taking Lead of DEQ to Develop Sampling Plan
- Prioritizing locations:
  - AFFFs
  - Landfills
- Geographic proximity to drinking water wells
- Developing Communication Plan
  - HAP Committee
  - DOH
  - LHDs