

PFAS [Per and polyfluoroalkyl substances] Summary & Update

May 24, 2019

Background: PFAS are a group of man-made chemicals designed to repel water, oil, and grease. They are present in many consumer products including waterproof clothing; stain-resistant fabrics, carpets, and furniture; paper and food packaging; non-stick cookware; and firefighting foams. PFAS are often described as persistent organic pollutants or “forever chemicals” since they do not readily break down once released to the environment. They are very mobile in water and bio accumulate in animal tissue. Some studies have associated high-level PFAS exposures with reduced fertility, developmental delays in infants and children, interference with natural hormones, increased cholesterol levels, reduced immune response, and increases in some types of cancer. Many PFAS have not been studied for their impact on human health. Incomplete information is available for decision-making on this rapidly developing issue.

PFAS focus areas: Drinking Water, Fire Training Areas, Truax Contamination, & Starkweather Creek

A. Drinking Water – monitoring is on-going; PFOA & PFOS groundwater standards are imminent

- In 2017, low-level PFAS contamination was first discovered in two Madison wells.
- To date, 19 of 23 Madison wells have been screened for 24-30 PFAS chemicals at low single-digit part per trillion detection levels; the remaining four wells will be tested later this summer.
- Ten wells have shown the presence of at least one PFAS chemical; when present, a mixture of six to ten PFAS chemicals are often found.
- The highest combined PFOA + PFOS concentration at any Madison well is 12 parts per trillion (ppt) at Well 15; the other wells range from non-detect to about 5 ppt.
- The highest total PFAS concentrations are found at Well 15 (56 ppt) and Well 9 (52 ppt); most other wells with detections test in the single-digit ppt range with Well 6 (13 ppt) and Well 14 (18 ppt) being a little higher.
- **There are no federal or state drinking water standards for any of the several thousand potential PFAS chemicals;** EPA established a health advisory level of 70 parts per trillion for the combined concentration of PFOA & PFOS – two of the more widely used PFAS. Some have suggested this level is not sufficiently protective of human health especially for sensitive populations including fetuses and breast-fed infants. Meanwhile, some states have established lower limits for PFAS in drinking water and/or groundwater, or set standards for PFAS beyond PFOA & PFOS.
- Well 15 was converted to a seasonal well in March and has not operated since. After the Wisconsin Dept of Health Services recommends a groundwater standard for PFOA + PFOS, which is expected mid-year 2019, water utility staff will assess whether to return Well 15 to service for the high-demand summer months (June to September).
- There are no current plans to change the operation of other Madison wells based on the presence of PFAS.
- Treatment technologies to remove PFAS from drinking water include granular activated carbon and reverse osmosis. These technologies are expensive to install and will involve high annual operating costs.

B. Fire Training Areas (FTAs) – know by August if WI Air National Guard has funds to investigate

- Two former FTAs are located at Truax Airfield – Darwin Drive @ International Lane and Pearson Street; these FTAs have not been used for firefighter training in nearly 30 years.
- WI Air National Guard, Dane County, and the City of Madison have been identified by WDNR as potential responsible parties and ordered to investigate these areas.
- WI Air National Guard is taking the lead on investigating potential PFAS releases from these sites. Currently, there is no funding to perform the work, but WI ANG will know by August if funds will be available to complete a scope of work by the end of the federal fiscal year (September 30).
- City, county, airport, and state staff provided input into the scope of work required to investigate the fire training areas.

C. Truax/WI Air National Guard Contamination – no timeline for remediation established

- A preliminary site investigation identified significant PFAS contamination of soil and shallow groundwater at nine potential release locations investigated at Truax.
- Six PFAS chemicals were tested; combined PFOA + PFOS measured up to 40,000 ppt while the total PFAS concentration was a maximum of 46,000 ppt.
- Temporary monitoring wells at two base boundary locations found PFOA + PFOS levels of 635 – 664 ppt while the total PFAS range was 1,970 – 4,840 ppt.
- No PFAS testing has been conducted outside the base boundary; the lateral and vertical extent of the PFAS contamination has yet to be investigated.
- Ultimately, the Department of Defense is responsible for investigating and remediating the contamination; no funding has been appropriated to initiate this effort. Overall, Truax is low on the priority list compared to other DOD sites across the country where PFAS levels are significantly higher AND have resulted in private and community water supplies exceeding the EPA health advisory level.
- PFAS releases are associated with AFFF (firefighting foam) equipment testing, discharges during military, commercial, and civilian aircraft emergencies, accidental releases and/or spills, and a documented fuel spill.
- Well 15 is located about one mile southeast of the base/airport. PFAS contamination at the well is likely related to PFAS releases at the base/airport.
- The AFFF formulation has been changed to eliminate some long chain PFAS; however, replacement PFAS chemicals are now being used as required by FAA regulations.
- Except for emergencies involving civilian, commercial, and military aircraft, releases of PFAS at Truax have been virtually eliminated.

D. Starkweather Creek – expect results of fish tissue study by the end of summer

- Drainage runs through areas adjacent to FTAs; water and sediments may have PFAS
- Primary concern is potential PFAS in fish tissue particularly with subsistence fishing
- WDNR to conduct fish tissue sampling from fish harvested from Starkweather Creek