Late in 2017, Michigan lawmakers ended their legislative year seeking a fix to another problem with drinking water in the state. It wasn’t lead contamination this time, but rather the discovery of 28 sites in the state with known levels of PFAS, or per- and polyfluoroalkyl substances. The Legislature allocated $23.2 million for various response and mitigation measures.

In early 2018, the Minnesota attorney general finalized an $850 million settlement with 3M over groundwater contamination in the east metropolitan area of the Twin Cities. The cause: The company’s disposal, over decades, of PFAS chemicals used for products such as Scotchgard, stain removers and fire retardants. Though these chemicals were used for decades, and many of them have been phased out of production, they are considered an “emerging contaminant” — because environmental and health officials have only recently begun to test for the presence of PFAS chemicals in drinking water, detect them, and understand their potential impact on human health.

The new funding in Michigan will be used to purchase new lab equipment, expand testing of drinking water, and purchase filtration systems for affected residents. A longer-term fix is likely to be more problematic and costly, whether it’s pumping out all the groundwater and removing the chemicals or hooking up the owners of private wells (this has been the group most affected in Michigan) to a municipal system.

Gov. Rick Snyder has created a multi-agency PFAS Action Response Team as well as science and public health advisory committees, and in early 2018, the Michigan House adopted a resolution (HR 228) providing direction for these groups.

“We want to make sure our state is taking a science-based approach to assessing the risks in order to guide a good use of taxpayer funds in doing these cleanups,” Rep. Mary Whiteford says, adding that “the effects of PFAS on the human body are not finite science yet, but it appears to have some.”

According to the U.S. Environmental Protection Agency, the most consistent scientific findings have shown increased cholesterol levels among exposed populations. Other, more limited findings have been related to low birthweights, effects on the immune system, cancer and thyroid hormone disruption.

In January, Michigan established a new state criterion for the presence of two types of PFAS chemicals, perfluorooctanoic acid and perfluorooctanesulfonic acid, in drinking water. That criterion is 70 parts per trillion, the same as the health advisory value (non-regulatory and non-enforceable) recently developed by the U.S. Environmental Protection Agency.

Under proposed legislation in Michigan, the state’s drinking water standards would be revised by setting a limit of 5 ppt for these two PFAS chemicals. HB 5375 has not made it out of committee, but the state’s new 70 ppt criterion will allow the state “to take regulatory enforcement actions, something we have not been able to do,” says Heidi Grether, director of the Department of Environmental Quality.

The state also is taking steps to “hold responsible parties accountable,” Grether says. In January, the department filed a lawsuit against Wolverine World Wide, a manufacturer of shoes whose use and disposal of PFAS chemicals is believed to have caused a contamination of drinking water in eastern Michigan’s Kent County. Minnesota filed its lawsuit against 3M in 2010, and this year’s $850 million settlement will be used to clean up
drinking water and protect groundwater resources in the affected Twin Cities area.

As in Michigan, one of the short-term fixes in Minnesota has been to provide filtration devices, either in-home units or larger ones for community water wells. Finding long-term solutions will be one of the tasks of newly formed state working groups.

According to James Kelly, the manager of environmental surveillance and assessment for the Minnesota Department of Health, possible permanent solutions include moving the entire affected area to a surface water source or creating a single, centralized plant to treat the groundwater.

Last year, Minnesota developed its own health-based values for perfluorooctanoic acid and perfluorooctanesulfonic acid — 35 ppt and 27 ppt, respectively (lower criteria compared to the U.S. EPA's and state of Michigan's). Minnesota scientists say these values reflect the need to better protect developing infants and very young children.

David Andrews, a senior scientist at the nonprofit, nonpartisan Environmental Working Group, suggests four actions for states to take regarding PFAS chemicals: 1) Identify sources of contamination and provide for testing in these areas; 2) Take steps to reduce contamination; 3) Hold responsible parties responsible; and 4) Consider setting new, legally enforceable drinking water standards.

Federal budget invests dollars to find more answers on health effects of PFAS

Concerns among federal lawmakers about the rise in sites contaminated with PFAS chemicals led them to include $63.8 million in the fiscal year 2018 budget for various remediation and research efforts. Most of that money will be allocated to the Air Force Environmental Restoration Fund, which is used by the U.S Department of Defense to identify, investigate and clean up former waste disposal sites on military property for the remediation of two types of PFAS chemicals (PFOS and PFOA). The contamination of these Air Force sites is due to the use of these chemicals in a firefighting foam.

Also included in the FY 2018 budget is up to $10 million for a U.S. Centers for Disease Control and Prevention study that explores the health effects of PFAS and $10 million for health screenings.

“That is still a very active area of scientific research because we’ve only been looking at these chemicals for 15 to 20 years,” says James Kelly, manager of environmental surveillance and assessment for the Minnesota Department of Health. “That’s not a long time.”

But what’s known for sure about these chemicals is that they are “extremely persistent,” says David Stephens, a senior scientist at the nonprofit, nonpartisan Environmental Working Group.

“That’s part of their chemical functionality,” he adds. “They are built with these carbon-fluorine bonds that are extremely strong and extremely stable. They are very long lasting, both in the environment and in our bodies.”

To date, the science on human health and PFAS has relied on animal studies and exposed human populations, such as residents in the Mid-Ohio River Valley affected by releases of a PFAS chemical. In February, the Ohio attorney general filed a lawsuit against DuPont over these releases from a plant in West Virginia. (A 2017 University of Cincinnati study, which analyzed blood samples collected between 1991 and 2012, found that residents of the Mid-Ohio River Valley had elevated levels of perfluorooctanoic acid.)

“The presence of PFOA in drinking water and Ohio’s natural resources directly threatens the health and safety of tens of thousands of Ohio residents,” Attorney General Michael DeWine says in the lawsuit. Using the health data of West Virginia and Ohio residents exposed to PFOA through their drinking water supplies, a science panel found “probable links” with pregnancy-induced hypertension and preeclampsia, autoimmune disease, testicular cancer and kidney cancer, and thyroid disease.

By:
Wednesday, April 25, 2018 at 03:01 PM
Stateline Midwest: April 2018

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