

## COLUMN

# 'Forever chemicals' no more

## Wisconsin firm works to remediate PFAS

**TOM STILL**

Special to the EagleHerald

No one needs to convince Larry Kinsman, principal at ORIN Technologies in Verona, of the health threats associated with long-term exposure to per- and poly-fluoroalkyl substances, commonly known by their PFAS and PFOS acronyms.

With 4,700 such compounds in use worldwide at one time or another, it's hard for hydrogeologist Kinsman to believe only two compounds harbor dangers for people.

On the other hand, don't use the term "forever chemicals" around Kinsman to convey a sense of hopelessness about what society should do about it. He knows such compounds can be destroyed or encapsulated because ORIN Technologies has done both.

"It (forever chemical) is a faulty term now for PFAS and PFOS. Four or five years ago, you probably would have said that, but not today," Kinsman said.

The need for firms such as ORIN Technologies to address the need for PFAS cleanup took on renewed urgency April 10 when the U.S. Environmental Protection Agency announced that, for the first time ever, that there will be strict standards on those chemicals in drinking water. That cap is 4 parts per trillion, the equivalent of four drops in 500,000 gallons of water. The previous lifetime standard was 70 parts per trillion.

Like so many federal rules, however, the onus will fall primarily on local governments and water utilities where testing has revealed the presence of PFAS. In Wisconsin, communities such as Valders, Peshtigo, Campbell and Madison will have roughly five years to achieve the four parts per trillion standard for drinking water — an expensive proposition that may be advanced by federal aid, but those guarantees and procedures remain unclear.

Further complicating the picture was Gov. Tony Evers' April 9 veto of a \$125-million bill that would have created grants for PFAS cleanups. The governor was concerned the bill would limit the authority of the state Department of Natural Resources to hold polluters liable. A showdown with the Legislature's

budget-writing committee may result.

Meanwhile, technical solutions exist, such as what ORIN, its partners and others are implementing in civilian and military sites.

Various PFAS compounds are abundant because they were used in everything from cookware to clothing, and from carpet to fire-fighting foam over time.

They're not all dangerous, but research continues to sort out which are potentially harmful and which are not. The chief danger from PFAS pollutants underground comes from plumes that can reach surface or underground water sources, such as wells.

The three-part remediation, patented process used principally by ORIN and

Fixed Earth Innovations of Canada utilizes a bio-absorbent membrane or "sponge;" microbes that break down complex chemicals in soil; and electrodes that generate oxygen supply. The generation of oxygen is necessary for PFAS-degrading bacteria to work.

The process is aerobic versus anaerobic, meaning oxygen produced by the electrodes continues the removal process over time. The carbon-based "sponge" is technically a Bioavailable Absorbent Media with a unique honeycomb structure that draws in contaminants, retains them and minimizes surface microfilm building that could resist continued absorption. An electrokinetic system continues to supply oxygen over time.

Data showing a 97% removal rate on a site at the Dane County Regional Airport was shared with the Wisconsin DNR and has captured attention from federal officials and researchers well beyond the state.

Kinsman said there are other processes that could help, too, from incineration to super-critical oxidation, and from "soil washing" to landfilling — although most landfills won't take such soil. His latest concern is for smaller communities and water utilities that will find it tough to meet the new 4-parts-per-trillion standard.

Development of PFAS-type compounds was a technical breakthrough at the time because of their flame-resistant qualities. Perhaps technologies such as those produced by ORIN and its partners will now be a part of the solution.

**Tom Still** is president of the Wisconsin Technology Council. He can be reached at [news@wisconsinstechnologycouncil.com](mailto:news@wisconsinstechnologycouncil.com).



TOM STILL