

The background of the top half of the page is an abstract digital image with blue and yellow light trails, suggesting a high-speed tunnel or data flow.

# Don't Blink; the Status of Environmental Cleanup

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**K**enny Chesney recorded a song in 2007 called “Don’t Blink.” The gist of it is life goes faster than you think, so don’t blink.

It seems like only a short time ago we were cleaning everything up to non-detectable levels. Then came risk-based corrective action, a process that enabled us to truly practice our craft as scientists, engineers, and consultants. We were no longer searching for the ever-elusive non-detectable concentration. Instead, we were managing risk; the fundamental premise being that concentrations don’t matter, if there is no exposure.

And, if characterizing soil and groundwater in a three-dimensional subsurface environment wasn’t challenging enough, we’ve recently found ourselves chasing vapors in both a subsurface and ambient environment, where the leading edge of a plume may far exceed the extent of soil or

groundwater impact we had previously delineated.

Now, even before having had a chance to digest the potential ramifications of vapor intrusion, we’re on to per- and polyfluoroalkyl substances (PFAS), a group of emerging and potentially harmful contaminants used in thousands of applications globally, from firefighting foam to food packaging, cleaning products, and even cosmetics.<sup>1</sup>

In January 2018, the Michigan Department of Environmental Quality (MDEQ) set an official state standard of less than 70 parts per trillion — yes, trillion — for certain PFAS compounds in groundwater used for drinking water.<sup>2</sup> PFAS chemicals include perfluorooctanoic acid (PFOA) and perfluorooctanesulfonic acid (PFOS). Michigan is one of only a handful of states to establish enforceable limits for any PFAS

compounds.<sup>1</sup> MDEQ based the criterion on the lifetime health advisories published by EPA in 2016: when both PFOA and PFOS are found in drinking water, the combined concentrations should be compared to 70 parts per trillion.<sup>3</sup> With this criterion, MDEQ can now issue violation notices and act against any responsible party who doesn’t comply with the state’s cleanup rules.

Is it a big deal? In fact, it is. MDEQ reports PFAS contamination has been found in 28 locations in 15 different communities across the state, including northern Kent County where Wolverine Worldwide operated a tannery and several military facilities, like Wordsmith Air Force Base.<sup>4</sup> To underscore its significance, last fall Governor Rick Snyder created the Michigan PFAS Action Response Team (MPART) to address this emerging issue and to help inform the public. Led by Professor David

Hyndman, chair of Michigan State University's Department of Earth and Environmental Sciences, MPART is currently kicking off a \$23 million effort to locate and identify sources of PFAS contamination and to oversee remediation activities aimed at protecting the state's water resources and mitigating risks to the public.<sup>4</sup> This effort represents what is purported by MDEQ Director Heidi Grether to be "the most thorough and effective response to PFAS in the country."<sup>4</sup>

Hyndman is an expert in groundwater hydrogeology, and his work has led to the development of several methods to track contamination in groundwater.<sup>4</sup>

And, with an action level of 70 parts per trillion that will be no simple task. Sampling protocols are stringent and arduous – no waterproof notepads or clothing, no Teflon tubing or connectors, no plastic clipboards, no Scotchguard or GORE-TEX, and no cosmetics. (And we thought chasing vapors was going to be tough.)

Although acceptable PFAS exposure levels continue to be debated nationally, MPART isn't wasting any time. In May 2018, MPART announced plans to conduct a state-wide survey of PFAS levels in public water supplies. The survey will include Michigan's 1,380 public water systems – roughly 75 percent of the state's drinking water comes from public systems – and 461 schools that operate their own wells. The schools will be considered priority testing sites under the initiative.<sup>1</sup> According to MDEQ announcements, the department is committed to proactively addressing this emerging contaminant, protecting the state's water resources, and mitigating risks to the public.<sup>4</sup> And my guess is other states won't be far behind. It seems like only a short time ago we were cleaning everything up to non-detectable levels ... (don't blink).

#### References:

1. Michigan Department of Environmental Quality. (2018, May 18). Press Release: Michigan embarks on a statewide study of PFAS in water supplies. Retrieved from: <https://www.michigan.gov/deq/0,4561,7-135-3308-468979--,00.html>
2. Michigan Department of Environmental Quality. (2018, January 9). Press Release: State Takes Action to Strengthen Environmental Criteria in Response to PFAS Contamination. Retrieved from: [https://www.michigan.gov/deq/0,4561,7-135-3308\\_3323-457220--,00.html](https://www.michigan.gov/deq/0,4561,7-135-3308_3323-457220--,00.html)
3. Environmental Protection Agency. (2016, November). Fact Sheet: PFOA & PFOS Drinking Water Health Advisories. Retrieved from: [https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories\\_pfoa\\_pfos\\_updated\\_5.31.16.pdf](https://www.epa.gov/sites/production/files/2016-06/documents/drinkingwaterhealthadvisories_pfoa_pfos_updated_5.31.16.pdf)
4. Michigan Department of Environmental Quality. (2018, April 25). Press Release: MDEQ taps top MSU hydrogeologist for state PFAS response. Retrieved from: <https://www.michigan.gov/som/0,4669,7-192-26847-467100--,00.html>

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