DEPARTMENT: POLLUTION CONTROL AGENCY

STATE OF MINNESOTA
Office Memorandum

DATE: March 19, 2024

TO: 3M PFAS Settlement Working Groups

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Commissioners Office

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SUBJECT: 2023 Residential Well Sampling for Per - and Polyfluoroalkyl Substances Compounds

As specified in Minn. Stat. 115B.171, the Minnesota Pollution Control Agency (MPCA) is providing the following information to the communities in the East Metropolitan area impacted by per- and polyfluoroalkyl substances (PFAS) groundwater contamination.

The information below describes the private well sampling activities during 2023. Overall, 243 residential wells were sampled in 2023 and, of those, 14 were issued well advisories. These values account for approximately 5.5% of all residential well samples (4409) and 1% of all advisories issued (1514) since PFAS sampling began in 2003, although many of the wells sampled this year were also sampled in previous years.

Since 2003, the MPCA and Minnesota Department of Health (MDH) have coordinated efforts to sample and monitor private residential drinking water supply wells in South Washington County. The objective of the sampling is to characterize PFAS impacts and identify drinking water wells eligible to receive treatment. Historically, an exceedance to MDH's drinking water guidance occurs when an individual PFAS is detected at a concentration above the health-based guidance value or when the mixture of PFAS in a sample exceeds a Health Risk Index (HI) value of 1. The HI is a calculated value that allows MDH to evaluate the additive effect of multiple chemicals in drinking water that have similar health effects with varying toxicities (which is reflected in their different health-based guidance values). In instances when MDH issues a health risk advisory to a homeowner, the MPCA offers to install a whole-house treatment system or connect the residence to city water in accordance with the Conceptual Drinking Water Supply Plan (Conceptual Plan). The MPCA maintains treatment filters installed for residences approved for whole-house treatment systems.

In addition to wells with a health risk advisory, wells with an HI greater than 0.5 were offered a whole-house treatment system, in accordance with the Conceptual Plan. Wells will continue to receive treatment systems if they have an HI of at least 0.5, using the HI equation in the Conceptual Plan and the associated health-based value (HBV) and health risk limit (HRL)s at the time it was finalized (August 18, 2021). This approach added resiliency to the Conceptual Plan, accounting for future lowering of health-based values from MDH. Wells with an HI between 0.25 and 0.5 calculated using data from previous sampling events were re-sampled in 2022 to evaluate their current risk level. The MPCA continues to sample wells both upon request and to determine the path of the plume.

During the 2023 sampling effort, wells were sampled for 3 main purposes: 1. Residential wells located inside the plume; 2. Re-sampling wells for current conditions and plume monitoring; 3. Confirmation of plume boundaries and ongoing monitoring of contaminant movement in areas not recently investigated.

MDH also samples public drinking water supply wells and non-community water supply wells (i.e., schools, churches, greenhouses) to monitor PFAS impacts to public water supplies. PFAS samples collected, both from public and private drinking water wells, are analyzed by the MDH Public Health Laboratory. The MPCA and MDH coordinate the sampling schedule.

Major focus areas of the 2023 sampling effort included:

- Further defining the edges of the PFAS advisory areas (particularly in West Lakeland Township, Afton, Maplewood, and southwest Woodbury).
- Adjusting the carbon filter change-out timeframe for wells impacted by both PFAS and the Baytown trichloroethene groundwater plume to an annual basis, rather than as-needed for VOC impacts.
- Establishing plume definition by sampling in zones around the advisory areas where no perfluorooctanoic acid (PFOA) or perflurooctanesulfonic acid (PFOS) are detected.
- Evaluating areas where wells unexpectedly exceed the health-based guidance values (see "Anomalous Area Sampling" below).
- Responding to city requests for sampling to evaluate water quality in neighborhoods that may be considered for city water expansion.
- Compiling data from previously sampled wells with an HI greater than 0.5 to determine eligibility for filtration through the Conceptual Plan and sending letters to 212 residents who qualify for the carbon filtration system. Of those, 171 respondents returned the access agreement for the whole-house filtration system.
- Re-sampling wells with HI greater than 0.25.
- Re-sampling wells in West Lakeland Township, Afton, and Lakeland and Lakeland Shores to evaluate water quality trends.
- Transitioning the East Metro Private Well Sampling program from MDH to the MPCA.

Anomalous Area Sampling

MPCA and MDH continued to sample wells in the affected anomalous areas to identify additional impacted residential wells that exceed health-based values, and further refine our understanding of the PFAS presence and concentration in each area. Private well sampling in 2020-2023 identified six relatively small, isolated areas where the concentrations of PFAS tend to be higher than the surrounding sampling results. These anomalous areas are located in central and northern Lake Elmo, southeastern Cottage Grove, and southeastern Denmark. MPCA will continue to sample private wells in these areas.

Evaluating PFAS Concentration Trends

Some private wells have been routinely monitored since the mid-2000s, particularly those that are closest to the known disposal sites and in areas with numerous well advisories. MPCA can evaluate PFAS concentration trends where multiple years of data exist. In other areas, such as eastern Lake Elmo, West Lakeland Township, Afton, and Lakeland—most wells were first sampled somewhat recently in 2017-2023, making long-term trend analysis difficult. Comparing early sample results to recent results is also difficult, as the lab methods have improved dramatically since 2003.

- **Near the known 3M disposal sites** in Oakdale, Lake Elmo, and Woodbury, PFAS concentrations continue to show slow, steady decreases, although the PFAS levels are still well above MDH health criteria.
- **Near the downgradient edges of the plumes** as they approach the Mississippi and St. Croix Rivers, PFAS concentrations are continuing to slowly increase. Some examples include west and southwest Woodbury, southeast Maplewood, south Cottage Grove, and Grey Cloud Island Township.
- **Near the central portion of the plumes** (most of Lake Elmo, Woodbury, north Newport, and Cottage Grove), concentrations continue to be relatively stable with some areas showing slight increases (Downgradient of the Lake Elmo Park Preserve and "old village" area of Cottage Grove). Improved detection limits have allowed for the detection of trace levels of PFOS and PFOA where not previously detected, resulting in higher HI values and giving the appearance of increasing concentrations. Some exceptions include:

The MPCA and MDH will continue to monitor levels of PFAS compounds in groundwater and evaluate trends in concentrations in all of the areas mentioned above, and in areas of Washington County sampled for the first time in 2018-2023.

In 2022, the MPCA took over the sampling program from MDH and developed its own online request form. In 2023, the MPCA received 299 sample request/permission forms from Washington County residents through the online system, almost double the number of on-line requests received in 2022 (158). MDH and MPCA also received requests for well sampling by other means, such as phone calls and e-mails. MDH and MPCA staff evaluated these requests to ensure wells were within the impacted areas. A significant number of requests were for private wells in areas already planned for sampling in 2023. Additionally, many requested samples were not taken because the residence was serviced by municipal water or outside of the impacted area. Otherwise, all appropriate requests were either sampled in 2023 or will be sampled once a unique number is assigned.

Using the sampling results, the MPCA maintains an online interactive map Private Well Sampling in the East Metro Area (arcgis.com)which indicates locations of wells sampled, well advisories issued, planned sampling areas, and provides a link to the online sampling request form.

In 2024, MDH lowered the health-based values for PFOS and PFAS based on new research including human epidemiology studies. MDH and MPCA continue to work on implementation policies related to health-based values.

In 2024, MPCA and MDH plan to focus on the following:

- Re-sample wells that were evaluated using older analytical techniques. Current contamination levels, using current methods, are needed to make decisions with new guidance values.
- Continue with the long-term monitoring program based on well sampling history, nearby well data, and plume behavior to determine sampling frequencies. Adjust areas sampled and/or frequency of sampling in response to changing health values.
- Continue to monitor private wells in affected areas to help determine if connection to municipal water or installation of a home treatment system is needed.
- Continue to provide sampling of wells within the PFAS sampling area, upon request from residents.
- Continue coordination between the MPCA and MDH of annual residential sampling and determination of health risk advisories in the East Metro.
- Contacting residences whose private drinking water wells are eligible for treatment, as outlined in the Conceptual Plan, to offer the installation and maintenance of GAC systems.

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