April 10, 2024

Chair Barabara Flynn Currie
Illinois Pollution Control Board
1021 N Grand Ave E
Springfield, IL 62702

RE: R2022-018 Proposed Amendments to Groundwater Quality (35 Ill. Adm. Code 620)

Dear Illinois Pollution Control Board,

On behalf of the Water Quality Association (WQA), a not-for-profit trade association representing 2500 member companies in the residential, commercial, and industrial water treatment industry, we are submitting comments in reference to the Illinois Pollution Control Board (IPCB) proposed amendments to Groundwater Quality (35 Ill. Adm. Code 620). We applaud the board's actions in researching and taking action to improve water quality across the State and hope you will utilize us as a resource in responding to Per- and Polyfluoroalkyl Substances (PFAS) contamination and heavy metals in groundwater supplies.

About WQA

Since its creation in 1974, WQA and its member companies have worked tirelessly to improve water quality through sustainable technologies and services. As a leader in the point-of-use (POU) and point-of-entry (POE) drinking water treatment system industry, the association operates an American National Standards Institute National Accreditation Board (ANAB) accredited testing and certification program that evaluates and certifies water filtration products to nationally accepted industry standards for contaminant removal. The association also operates a Professional Certification Program with a rigorous continued education component that qualifies a level of knowledge to enhance the application of the certified products. WQA also offers a variety of technical skills and educational resources, many of which can serve as vital tools as the Illinois Environmental Protection Agency (IEPA) aims to reduce PFAS and other health-based contaminants in drinking water and groundwater.

WQA's Comments to the proposed-PFAS Groundwater Quality Standards

The proposed groundwater quality standards will have a significant impact on residents – in Illinois, an estimated 400,000 private water wells provide drinking water to approximately 1.3 million people. Private wells are not tested at the discretion of the owner, who may not be knowledgeable on which contaminants to test for; ultimately this can delay the identification and response to health threats in rural areas and small systems.

2375 Cabot Drive
Lisle, Illinois 60532-3696 USA
Phone 630-505-0160
Fax 630-505-963
https://wqa.org/

When water quality standards are established, and areas of contamination are identified, the public will begin looking for ways to reduce these health contaminants or look to the state to provide short-term or long-term relief. So, it is important for residents to have knowledge and accessibility of the best available technology.

While our association will not be providing recommendations on appropriate groundwater quality standards for PFAS chemicals and heavy metals, we can inform you of the current feasibility of mitigation and treatment techniques in relation to the proposed rulemaking. Most of our comments will focus on the industry's current capabilities, including information on performance standards, lab capabilities, and available treatment technologies. However, it's important to highlight a few other considerations in direct response to the proposed Groundwater Quality Standards.

POU and POE Technologies

Final barrier technologies can be deployed immediately in response to public health concerns and are being utilized today in many households, businesses, and schools. It is important to note that POU and POE filtration systems, such as carbon blocks, Granular Activated Carbon Matrixes (GAC), Anion Exchange (AIX), and Reverse Osmosis (RO) systems can also treat these contaminants. POU systems are especially effective at reducing PFAS as well as other health-based contaminants.[1] POU technologies currently used for this purpose include Filters and RO systems. POU Filters often contain activated carbon, but typically other types of media (e.g., anion exchange media) are also added to improve the removal efficacy of PFAS. POE treatment for PFAS can be accomplished using anion-exchange systems, whole-house filtration, and whole-house RO systems.

There are many POU and POE water treatment and filtration systems capable of improving drinking water quality. Using a certified product communicates compliance with voluntary and consensus performance standards, provides additional assurance that the treatment system works as advertised, and helps identify the products which will be most effective at meeting the water quality objectives. Including the appropriate NSF/American National Standards Institute (NSF/ANSI) standards for drinking water treatment and filtration systems is a good way to support the public in mitigating exposure to PFAS and other health-related contaminants. There are currently no federal regulations establishing minimum requirements for the safety and performance of water filtration systems. However, these national standards have been developed with the participation of interested and affected stakeholders including manufacturers, non-profits, advocacy organizations, representatives of government (such as the EPA), and academia.

[1] Zhou, Z. (2022). Emerging Contaminant Removal and Microbial Growth in POU Membrane Filtration and Activated Carbon. Unpublished manuscript. Purdue University. Retrieved from https://www.wqrf.org/completed- studies.html

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NSF/ANSI Standards

Currently, two existing standards for third-party certified water filtration systems offer elective claims to reduce either total PFAS or individual specified PFAS; NSF/ANSI 53: *Drinking Water Treatment Units – Health Effects* and NSF/ANSI 58*: Reverse Osmosis Drinking Water Treatment Systems.* These standards were recently updated to allow for the verification that certified water filtration systems reduce either total PFAS to a cumulative 20 ppt, or certain individual PFAS to specified values. Total PFAS reduction is measured by challenging the treatment device with a mixture of seven PFAS compounds made up of PFOA, PFOS, PFHxS, PFNA, PFHpA, PFBS, and PFDA, and then measuring the concentration of these PFAS in the treated water. As technology advances in PFAS detection, ideally, subsequent editions of these drinking water standards would continue to drive lower PFAS detection limits and an increasingly comprehensive list of PFAS analytes. We recommend citing these standards when POU water treatment devices are to be used in a regulated environment because the standards help to ensure these systems reduce exposure to PFAS as intended. When POE water treatment devices are to be used in a regulated environment it may be beneficial to request performance test data from the manufacturer, or to perform a pilot study to verify performance. The cost of certifying larger POE systems for removal of specific PFAS can be cost prohibitive and is not commonly done.

Product Performance

Although current industry standards test to 20 ppt for PFAS chemicals, WQA's accredited laboratory has been able to review existing performance testing data to 5 ppt (PFOA, HFPO-DA, PFDA, PFHpA, PFNA) and 10 ppt (PFOS, PFBS, PFHxS). WQA can currently evaluate product testing to a reporting limit of 1 ppt for PFAS, which will increase the precision in determining the POU/POE industry's ability to assist with addressing this public health issue.

A review of product performance data produced by WQA's laboratory suggests that the POU/POE water treatment industry may already have multiple products that can reduce PFAS chemicals to near or below the USEPA's MCLs of 4 ppt for PFOA and PFOS. It should be noted that these products are tested using an extremely high influent challenge level of a combined 500 ng/L PFOA and 1000 ng/L PFOS, demonstrating their ability to reduce PFAS at very high concentrations. It's conceivable that POU/POE products could reduce to even lower levels and possibly with larger treatment capacities if tested using lower influent concentrations.

POU & POE Removal of Heavy Metals

Leveraging multiple POU and POE products in a solitary product maximizes synergies between treatment approaches. Often referred to as a treatment train, this provides a more comprehensive and longer-lasting solution. This can be accomplished while maintaining a simple installation and user experience as it is being provided in a single product. One example of this would be the

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Lisle, Illinois 60532-3696 USA
Phone 630-505-0160
Fax 630-505-963
https://wqa.org/

addition of a cation exchange system (also known as a water softener) and pre-filters to an RO-based product.

This can be especially effective in mitigating exposure to heavy metals in groundwater. Specific to Selenium, RO systems, ion exchange, activated alumina (AA), and distillation are effective treatment techniques for reducing the contaminant.[2] RO systems in both POU and POE applications are useful in addressing multiple contaminants. Many POU RO systems that are certified to NSF/ANSI 58 include reduction claims for additional health-based contaminants including PFAS and Selenium. Distillation products are another viable technology to mitigate exposure to Selenium.

RO, distillation, and cation-exchange water softeners are potential solutions for mitigating Cobalt. Pilot testing of these technologies would be recommended to better understand their relative effectiveness at removing cobalt. The integration of a combination of POU and POE technologies offers a robust solution for addressing heavy metal and PFAS contamination. This holistic approach, known as a treatment train, maximizes treatment synergies, ensuring a comprehensive and long-lasting solution offering a versatile and reliable means of reducing contaminants in water supplies.

We welcome the opportunity to help support the reduction of PFAS and other contaminants in groundwater and drinking water supplies. And would be more than willing to serve as a technical resource to IPCB and IEPA. Thank you for considering this important matter and working to ensure the health and well-being of Illinoisians.

Sincerely,

Jordan Kari
Government Affairs Manager
Water Quality Association
JKari@wqa.org

[2] https://wqa.org/wp-content/uploads/2022/09/2015_Selenium.pdf

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