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Fact Sheet

## **MDH Evaluation of Point-of-Use Water Treatment Devices for Perfluorochemical Removal Interim Report**

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Perfluorochemicals (PFCs) have been detected at low levels in groundwater in the southeast metro area. Perfluorobutanoic acid (PFBA), perfluorooctanoic acid (PFOA), and perfluorooctane sulfonate (PFOS) are the most widespread. PFCs are a family of chemicals used to make products resistant to heat, oil, grease, and water; including nonstick cookware, stain- and water-resistant fabrics, fire suppression foams, film coatings, and other consumer and commercial products.

For individuals who wish to reduce their exposure to PFCs in their drinking water, the results of a recent Minnesota Department of Health (MDH) study indicate that some point-of-use treatment devices can effectively remove PFCs from drinking water.

### **What is Point-of-Use (POU) Water Treatment?**

POU water treatment devices are installed at an individual tap, faucet, or outlet and reduces a contaminant at that one outlet. If breathing or skin absorption is not a health concern, POU treatment can prevent ingestion by treating water used for cooking and drinking. POU treatment devices utilize one or more different treatment systems, such as carbon adsorption, reverse osmosis, or ion exchange. POU water treatment devices include pitcher filters, faucet-mounted filters, or on- or under-the-counter units installed in the plumbing.

### **Evaluation of POU Devices for PFC Removal from Drinking Water.**

The 2007 Legislature directed the MDH to study POU devices for eliminating PFCs from drinking water. The MDH worked with Water Science and Marketing, LLC (WSM), and the Water Quality Association (WQA) to perform this task. The WQA is one of three major independent testing laboratories that evaluate and certify water treatment devices and chemicals. The study was designed with three major tasks:

- Ask companies that make POU water treatment devices to suggest which of their devices may be effective in removing PFCs.
- Conduct laboratory testing (Phase I) of selected devices at the WQA testing facility in Lisle, Illinois, to assess performance of each device under conservative conditions.
- Conduct field testing (Phase II) of devices that performed well in Phase I, utilizing water from one municipal well that contains multiple PFCs and one municipal well that contains only PFBA.

## What are the Findings of the Phase I Study?

The first task was to contact companies which have certified water treatment devices. The devices had to be rated to treat at least 500 gallons of water, certified to meet relevant industry standards, and be available to the public. WSM contacted over 500 companies that have treatment devices certified by one or more of the following organizations:

- Canadian Standards Association (CSA).
- International Association of Plumbing and Mechanical Officials (IAPMO).
- NSF International (NSF).
- Underwriters Laboratory (UL).
- Water Quality Association (WQA).

A panel consisting of staff from MDH, WQA, WSM, and the U.S. Environmental Protection Agency selected 14 devices from those recommended by the manufacturers for testing - eight reverse-osmosis (RO) and six activated carbon devices.

The devices were tested for 15 to 21 days using the three challenge solutions. Three different combinations of PFCs in water were used, all with PFC concentrations higher than have been generally found in the southeast metro area. Carbon devices were tested through 150 percent capacity. RO units were tested with rest cycles that simulate normal household use. Carbon prefilters were removed from the RO devices in order to better evaluate membrane performance. The treated waters from both the membrane and the postfilters for RO devices were tested individually.

Four RO devices and one carbon device were found to be effective in the Phase I laboratory tests and will proceed to Phase II field testing. In addition, the membrane of a fifth RO device was not entirely effective in removing PFBA, but is equipped with the same carbon post filter found to be effective alone. These devices are:

- CUNO SQC-3.
- EcoWater ERO-375E-CP.
- Kinetico Plus Deluxe VX.
- Pentair RO 3500-EX w/GS.
- Culligan RC-EZ-4 (carbon device).
- Culligan Aqua Clear.

More tests will be performed on two additional RO devices. Although some PFCs appear to pass through the RO membrane, the postfilter seemed to remove those contaminants. Three additional carbon devices are also being further evaluated under conditions more typical of normal use. If the PFCs are removed under these conditions, these devices may be included in future listings of devices found to remove PFCs.

## What Happens Next?

Phase II of this study will involve field testing the six devices that already passed Phase I testing and the other five devices that are undergoing further laboratory testing at WQA. Field testing will utilize water directly from two municipal wells in southern Washington County – one well with multiple PFCs and one well with only PFBA present. Findings and conclusions of both phases will be available in May 2008.

For more information about Evaluation of POU Water Treatment Devices for PFC Removal Interim Report, contact the  
**Well Management Section at 651/201-4600 or 800/383-9808**  
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