

IOWA DEPARTMENT OF NATURAL RESOURCES

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Water Supply Protocol for Per-and Poly FluoroAlkyl Substances (PFAS) Detection

Iowa Department of Natural Resources



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Background

PFOA and PFOS are fluorinated organic chemicals that are part of a larger group of chemicals referred to as perfluoroalkyl substances (PFASs). PFOA and PFOS have been the most extensively produced and studied of these chemicals. They have been used to make carpets, clothing, fabrics for furniture, paper packaging for food and other materials (e.g., cookware) that are resistant to water, grease or stains. They are also used for firefighting at airfields and in a number of industrial processes.

Because these chemicals have been used in an array of consumer products, most people have been exposed to them. Between 2000 and 2002, PFOS was voluntarily phased out of production in the U.S. by its primary manufacturer. In 2006, eight major companies voluntarily agreed to phase out their global production of PFOA and PFOA-related chemicals, although there are a limited number of ongoing uses.

Scientists have found PFOA and PFOS in the blood of nearly all the people they tested, but these studies show that the levels of PFOA and PFOS in blood have been decreasing. While consumer products and food are a large source of exposure to these chemicals for most people, drinking water can be an additional source in the small percentage of communities where these chemicals have contaminated water supplies. Such contamination is typically localized and associated with a specific facility, for example, an industrial facility where these chemicals were produced or used to manufacture other products or an airfield at which they were used for firefighting.

Studies indicate that PFOA and PFOS can cause reproductive and developmental, liver and kidney, and immunological effects in laboratory animals. Both chemicals have caused tumors in animal studies. The most consistent findings from human epidemiology studies are increased cholesterol levels among exposed populations, with more limited findings related to:

- infant birth weights,
- effects on the immune system,
- cancer (for PFOA), and
- thyroid hormone disruption (for PFOS)

To provide Americans, including the most sensitive populations, with a margin of protection from a lifetime of exposure to PFOA and PFOS from drinking water, EPA established the health advisory level at 70 parts per trillion (ng /L). When both PFOA and PFOS are found in drinking water, the combined concentrations of PFOA and PFOS should be compared with the 70 parts per trillion health advisory level. This health advisory level offers a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to PFOA and PFOS in drinking water.

Purpose

The purpose of this protocol is to assure a consistent response by the DNR to a public water supply (PWS) with a detection of a PFAS chemical with a Health Advisory (HA) (currently PFOA and PFOS) in the untreated or finished water.

Iowa DNR Water Supply Operations Monitoring Proposal for Public Drinking Water Supplies

- a. A raw or finished water detection of PFOA or PFOS will require quarterly monitoring at the Source Entry Point (SEP) for at a minimum of 4 quarters. 567 IAC 41.15.
- b. No detection or detections less than the HA at the SEP for 4 consecutive quarters, and the PWS can document the PFOA/PFOS levels are decreasing, the PWS may request in writing to go to annual monitoring at the SEP. The written request must provide all results, an indication the PFOA/PFOS levels are trending down, and a rationale to allow annual monitoring at the SEP. The rationale should include groundwater or surface water levels, climate considerations of the quarterly sampling events, treatment used by the PWS, etc. The written request must be approved by Iowa DNR. Annual monitoring will be assigned in the quarter which yielded the highest result.
- c. After 3 annual sampling events at the SEP, the PWS may be allowed to go to triennial if the results do not increase or remain stable. The written request must be approved by Iowa DNR. (The rationale for not following the SOC/VOC detection per IAC is that a detection of an unregulated SOC or VOC contaminant would be captured every 3 or 6 years as part of the regulated analytical series. However, PFOA or PFOS are not included

with any other analysis, therefore these contaminants must be continued to be required in the Water Supply Operations permit once it has been established the water supply is at risk of contamination from PFOA or PFOS.)

- d. The PWS may request the annual or triennial PFOA or PFOS monitoring at the SEP be discontinued by providing documentation the PWS is no longer at risk. Such documentation should include analytical data of the raw water source, contaminant plume, hydrology, remediation, etc. Future frequency of the monitoring will be considered.
- e. Public Notice (PN) will be required if the HA at the SEP is exceeded. In addition, quarterly monitoring will be continued. 567 IAC 42.1(1).

Ongoing or potentially changing actions include:

1. Currently PFOA and PFOS are the only PFAS compounds with HAs. It is expected that HAs will be developed for additional compounds, specifically GenX. Additional compounds will be included as HAs are developed.
2. Public Notice templates will be provided to the PWS required to complete PN. See Attachment A.
3. Laboratories with capabilities of analyzing samples and providing the data to SDWIS will be identified and updated as needed.
4. PFAS treatment (improvement, enhancement, addition, alternative source) is eligible for State Revolving Fund (SRF) loan forgiveness if a PWS is impacted by PFOA or PFOS (or any PFAS compound with an HA).

Iowa Administrative Code references

- 567 IAC 41.15 (455B) provides the authority to assign monitoring for a contaminant present in a PWS that poses a threat to human health.
- 567 IAC 42.1(1) (455B) provides the authority to require a PWS to notify the public of an exceedance of a health advisory.

(Attachment A)

IMPORTANT INFORMATION ABOUT YOUR DRINKING WATER

[System] Has Levels of PFOA or PFOS Above Drinking Water Standards

Our water system recently exceeded an EPA drinking water lifetime health advisory. Although this is not an emergency, as our customers, you have a right to know what happened, what you should do, and what we are doing to correct this situation.

We routinely monitor for the presence of drinking water contaminants. Testing results we received on [date] show that our system exceeds the EPA drinking water lifetime health advisory for PFOA (perfluorooctanoic acid) and/or PFOS (perfluorooctanesulfonic acid). The standard for PFOA or PFOS (or combined PFOA and PFOS) is 70 ng/L (parts per trillion). The average level of PFOA or PFOS over the last year was [level]. or PFOS or PFOA was found at [level].

What should I do?

- [System] customers, especially more sensitive users such as pregnant women, nursing mothers, infants and children, may want to consider using alternative water for drinking, cooking, making baby formula or food, washing fruits or vegetables, and brushing your teeth. If you have specific health concerns, consult your doctor.
- Ingestion (eating and drinking) is the primary way PFAS can get into the body. Washing hands and other skin contact is not considered a health concern as PFAS does not move easily through skin. Boiling, freezing, or letting water stand does not reduce PFAS levels.

What does this mean?

Some people who drink water containing PFOA or PFOS in excess of the EPA lifetime health advisory over many years could experience adverse health effects, including developmental effects to fetuses during pregnancy or to breast-fed infants (e.g., low birth weight, accelerated puberty, skeletal variations), cancer (e.g., testicular, kidney), liver effects (e.g., tissue damage), immune effects (e.g., antibody production and immunity), thyroid effects and other effects (e.g., cholesterol changes)*.

*Source: EPA Lifetime Health Advisories and Health Effects Support Documents for PFOS and PFOA Notice, Federal Register, 5/25/2016

What happened? What is being done?

[Describe corrective action.] We anticipate resolving the problem within [estimated time frame]. For more information, please contact [name of contact] at [phone number] or [mailing address].

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

This notice is being sent to you by [system]. PWSID#: _____. Date distributed: _____.