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 have shown that certain PFAS may:

- Affect growth, learning, and behavior of infants and older children
- Interfere with ability to become pregnant
- Increase risk of high blood pressure and pre-eclampsia in pregnant women
- Increase cholesterol levels
- Increase cancer risk (kidney and testicular)
- Cause changes in liver enzymes
- Suppress immune responses
- Interfere with pancreatic, thyroid, and liver function

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 had originally established the health advisory level at 70 parts per trillion (ng/L). However, in June 2022 EPA issued a press release that updated the lifetime health advisories for PFOA and PFOS, and created two new health advisories for PFBS and HFPO-DA (GenX). The health advisories for PFOA and PFOS are now 0.004 nanograms per liter (ng/L or parts per trillion) and 0.02 ng/L, respectively, and are considered interim health advisories at this time. The health advisories for PFBS and HFPO-DA (GenX) are 2,000 ng/L and 10 ng/L, respectively, and are final health advisories. These interim and final health advisory levels offer information that may be used to protect people from adverse health effects resulting from exposure throughout their lives to these contaminants 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, PFOS, PFBS, & HFPO-DA (GenX)) in the untreated or finished water.

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

a. A raw or finished water detection of a PFAS compound with an HA 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 levels are decreasing or remaining stable, the PWS may request in writing to go to annual monitoring at the SEP. The written request must provide all results, an indication the levels are trending down or are stable, 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, PFAS compounds 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 a PFAS compound with an HA.)
d. The PWS may request the annual or triennial 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 any HA at the SEP is exceeded. For PFOA and PFOS, the DNR will be requiring PN if the results are 4.0 ng/L or higher. This level is consistent with the EPA UCMR5 reporting levels. In addition, quarterly monitoring will be continued. 567 IAC 42.1(1).

Ongoing or potentially changing actions include:

1. Currently, HAs have been established for PFOA, PFOS, PFBS, & HFPO-DA (GenX). EPA will be issuing a proposed rule by the end of 2022, which will establish maximum contaminant levels (MCLs) or treatment techniques (TT) for PFOA and PFOS. Additional MCLs, TTs, or health advisories for other PFAS compounds may also be established per the proposed rule. The protocol will be updated to include any of these new compounds.
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 any PFAS compound with an HA). In addition, money from the Bipartisan Infrastructure Law (BIL) will also be available for emerging contaminants, including PFAS.

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 or PFBS or GenX Above Drinking Water Advisories

Our water system recently exceeded an EPA drinking water lifetime interim 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 [date] show that our system exceeds the EPA drinking water lifetime health advisory for the following PFAS compound(s):

PFAS Compound	Our Result (ppt)	Health Advisory Level (ppt)
PFOA		0.004 (interim)
PFOS		0.02 (interim)
PFBS		2,000
GenX		10

What is a drinking water health advisory?
A health advisory provides information on a contaminant that can cause negative human health effects and is known or anticipated to occur in drinking water. EPA's health advisories are non-enforceable and non-regulatory. They provide technical information to drinking water system operators, as well as federal, state, Tribal, and local officials, on the health effects, analytical methods, and treatment technologies associated with drinking water contaminants. This health effects information includes the concentrations of such drinking water contaminants (the health advisory "levels" or "values") at which adverse health effects are not anticipated to occur over specific exposure durations, such as one-day, 10-days or a lifetime.

EPA's health advisory levels offer information that may be used to protect people from adverse health effects resulting from exposure throughout their lives to contaminants in drinking water.

What should I do?

- If you are concerned about levels of PFAS found in your drinking water, contact your doctor or health care professional.
- Consider actions that may reduce your exposure including installing a home or point of use filter, if possible. The lower the levels of PFAS the lower the risk.
- Steps are being taken by EPA to further understand levels of concern and potentially regulate PFAS at the national level.
- Boiling, freezing, or letting water stand does not reduce PFAS levels.
- At this time, EPA is not recommending bottled water. EPA notes that the U.S. Food and Drug Administration has not established standards for PFAS in bottled water.
- Consider any resources and recommendations from your state.
- Review EPA's Meaningful and Achievable Steps You Can Take to Reduce Your Risk**.**

What are PFAS?
PFAS are a group of man-made chemicals that have been in use since the 1940s. PFAS are (or have been) found in a wide variety of consumer products and as an ingredient in firefighting foam. PFAS manufacturing and processing facilities, airports, and military installations are some of the contributors of PFAS releases into the air, soil, and water. Because of their widespread use, most people have been exposed to PFAS and there is evidence that exposure to certain PFAS may lead to adverse health effects.

What are the health effects of exposure to PFAS?
Exposure to PFAS may result in a wide range of adverse health outcomes, including:

- developmental effects including to fetuses after exposure during pregnancy or postnatal development (e.g., low birth weight, accelerated puberty, skeletal variations, development of the immune system);
- cancer (e.g., testicular, kidney);
- liver effects (e.g., cellular lesions);
- immune effects (e.g., decreased antibody response to vaccination, decreased immune response immunity);
- thyroid effects and other effects (e.g., cholesterol changes).

What happened? What is being done?
[Describe actions taken, such as continued monitoring and any actions taken to reduce levels.]

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: _____.