

OES 2022-04

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Addressing New Health Advisories for PFAS in Drinking Water

Introduction

This Operating Experience Summary (OES) provides information about the U.S. Environmental Protection Agency (EPA) updated interim lifetime Health Advisory (HA) levels for per- and polyfluoroalkyl substances (PFAS).

The OES presents examples of DOE sites assessing (and in some cases remediating) PFAS in drinking water and summarizes the drinking water commitments identified in the Department's *PFAS Strategic Roadmap: DOE Commitments to Action, 2022-2025* (Roadmap), published August 18, 2022. The OES also includes recommended next steps if PFAS are detected in a site's drinking water.

Health Advisory (HA) Levels

On June 15, 2022, the EPA released four drinking water HAs under the Safe Drinking Water Act for PFAS based on over 400 scientific studies (see table below). EPA releases HAs to convey technical information to states, agencies, and other public health officials that outline health effects, analytical methods, and treatment technologies associated with drinking water contamination. HA levels reflect potential health effects over a lifetime exposure. **It is important to note that HAs are not regulations and not enforceable.** When a HA is exceeded, it is not a violation, emergency, or immediate health concern.

The updated EPA HAs for the two most studied PFAS chemicals, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonic acid (PFOS), reflect the concern that adverse health effects may occur at near-zero water concentration levels.

The updated HA levels for PFOA (0.004 parts per trillion (ppt)) and PFOS (0.02 ppt) are significantly

lower than the previous 2016 HAs (70 ppt combined for PFOA and PFOS). Current laboratory testing capabilities cannot measure down to the new HA levels. The EPA notes that for "PFOS and PFOA, some negative health effects may occur at concentrations that are near zero and below our ability to detect at this time... the lower the level of these chemicals in drinking water, the lower the risk to public health." (EPA briefing, June 23, 2022)

EPA also included HA levels for two additional PFAS: GenX chemicals [hexafluoropropylene oxide (HFPO) dimer acid and its ammonium salt] developed as a replacement for PFOA, and perfluorobutanesulfonic acid (PFBS) is a replacement for PFOS.

EPA also issued new Lowest Concentration Minimum Reporting Levels (LCMRLs), which are the reporting levels laboratories must achieve to demonstrate precision and accuracy in PFAS sample analysis. The updated HA levels and current LCMRLs are as follows:

Chemical	HA Value	HA Status	LCMRL
PFOA	0.004 ppt	Interim	4 ppt
PFOS	0.02 ppt	Interim	4 ppt
GenX Chemicals	10 ppt	Final	5 ppt
PFBS	2,000 ppt	Final	3 ppt

*ppt= parts per trillion

The interim PFOA and PFOS HAs will remain in place until EPA establishes National Primary Drinking Water Regulations, which are expected in 2023.

DOE Site Examples

Most DOE sites have their drinking water supplied by a local public water system (PWS). However, several DOE sites manage their own drinking water systems, and some of these have performed monitoring and sampling for PFAS in drinking water. This has been done proactively to follow up on a site's historic operations that may have released PFAS, or in response to regulatory requests.

Brookhaven National Laboratory (BNL) on Long Island, New York (NY) was one of the first DOE sites to identify and remediate PFAS in drinking water. BNL conducted a detailed investigation into the on-site origins of PFAS, linking those detections to the historical use of firefighting foam in several locations. Granular activated carbon (GAC) filters were placed back into service at three drinking water supply wells in order to meet NY State drinking water standards of 10 ppt for PFOA and PFOS.

Two other supply wells were removed from service because of their close proximity to significant PFAS source areas and because they lacked GAC filters. BNL developed a comprehensive communications and engagement plan targeting various audiences, including employees, regulators, elected officials, media, and the public. Through a series of employee communications, media statements, and community meetings, BNL was able to manage the issue effectively and received positive feedback from these audiences in terms of its proactivity and effectiveness. [OES 2020-02: Emerging Contaminants in Groundwater at BNL](#)

Portsmouth Gaseous Diffusion Plant (Portsmouth) in Portsmouth, Ohio treats off-site groundwater onsite to supply drinking water to the workforce. In 2020, the State of Ohio sampled the influent and treated drinking water for PFAS. PFAS were not detected in treated water but were detected in the off-site groundwater. Note, the off-site groundwater is not hydraulically connected to the site groundwater. Because PFAS were not detected in the treated drinking water, Portsmouth in coordination with the State of Ohio has determined that no further action is necessary.

Idaho National Laboratory Site (INL) in Idaho Falls, Idaho obtains its drinking water from fifteen (15) deep onsite groundwater wells and operates ten (10) drinking water systems. In 2021 and 2022, INL sampled its drinking water wells for PFAS at the request of the State of Idaho. Although samples collected from two wells associated with one drinking water system had detectable levels of PFOA/PFOS, the concentrations were below the LCMRL. In coordination with the State of Idaho, no remediation is required at this time. The State of Idaho will re-evaluate PFAS in 2023 as part of a three-year review of drinking water quality standards.

DOE Drinking Water Commitments

The Department of Energy (DOE) is committed to protecting the health of our personnel and communities. This is outlined in Deputy Secretary Turk's September 16, 2021 memorandum, and reinforced by the Department's *PFAS Strategic Roadmap*.

The Roadmap lists actions DOE will take to ensure protection of workers, the public, and the environment. These include identifying the use and possible environmental release of PFAS from current and past activities, minimizing risks, continuing to identify solutions for PFAS-related challenges, and engaging with personnel, the community, and regulators.

The Roadmap commits to taking the following actions regarding drinking water:

- Test for PFAS at all DOE-owned water systems, where DOE supplies drinking water to a site.
 - Initial testing will be completed by 1st quarter FY 2023.
 - Guidance on retesting will be developed by 4th quarter FY 2023.
- Provide alternative drinking water supply to DOE sites where PFAS is detected in on-site drinking water at concentrations exceeding federal or state regulatory limits immediately. As noted earlier, HAs are not enforceable drinking water standards.

Recommendations

When sites identify PFAS in their drinking water steps should be taken to inform the workforce and community and enact PFAS monitoring.

PFAS information should be communicated regardless of the source of contamination, including when the source is unknown. Communication and engagement with community groups and other stakeholders is a fundamental principle of building effective relationships.

If PFAS are detected in drinking water, DOE sites should:

- For onsite supplied drinking water:
 - Continue to sample and monitor for PFAS
 - Coordinate with your Program Secretarial Office
 - Communicate and coordinate responses with appropriate regulators (e.g., EPA, state environmental offices, state and local health departments)
- For offsite PWS supplied drinking water, coordinate with the local provider on planned monitoring and mitigation efforts.
- *Note: EPA is not currently recommending providing bottled water or provisioning alternative water sources based solely on PFAS concentrations exceeding the HA levels.*

The Department is dedicated to the health and safety of its workers, the public, and the environment while continuing to research and implement the most current and advanced technology in detecting and mitigating PFAS contamination.

References & Additional Information

DOE References:

[Distribution Memo from Deputy Secretary Turk, Addressing Per- and Polyfluoroalkyl Substances at DOE, DOE, September 16, 2021](#)

[Operating Experience Level 3, Per- and Polyfluoroalkyl Substances \(PFAS\) Awareness, DOE, September 2019](#)

[Operating Experience Summary, Emerging Contaminants in Groundwater at BNL, DOE, March 2020](#)

[PFAS Strategic Roadmap: DOE Commitments to Action, 2022-2025, DOE, August 18, 2022](#)

EPA References:

[Drinking Water Health Advisories \(HAs\), EPA, June 15, 2022](#)

[Drinking Water Health Advisories for Four PFAS: PFOA, PFOS, GenX chemicals, and PFBS, EPA Public Webinar, June 23, 2022](#)

[Drinking Water Health Advisories for PFAS Fact Sheet for Communities, EPA, June 2022](#)

[Emerging Contaminants – Perfluorooctane Sulfonate \(PFOS\) and Perfluorooctanoic Acid \(PFOA\) Fact Sheet, EPA, March 2014](#)

[EPA Announces New Drinking Water Health Advisories for PFAS Chemicals, \\$1 Billion in Bipartisan Infrastructure Law Funding to Strengthen Health Protections, EPA, June 15, 2022](#)

[Federal Register, Volume 87, Number 118, Lifetime Drinking Water Health Advisories for Four Perfluoroalkyl Substances, June 21, 2022](#)

[Questions and Answers: Drinking Water Health Advisories for PFOA, PFOS, GenX Chemicals and PFBS, EPA, July 18, 2022](#)

The Office of Environment, Health, Safety and Security (EHSS), Office of ES&H Reporting and Analysis publishes OES articles to promote safety throughout the DOE Complex through the exchange of lessons-learned information among DOE facilities and program offices.

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