



New and Updated Drinking Water Health Advisories

Briefing Overview

- Overview of HAs
- Describe two recent PFAS actions released by EPA related to HAs
- Address NDWAC recommendations



EPA's Health-Based Drinking Water Levels





What is a Health Advisory?

A drinking water concentration that:

- offers a margin of protection for all Americans
 - defines a level at, or below which, exposure is not anticipated to lead to adverse health effects
 - Considers effects over specific durations of exposure (*e.g.* 1-day and lifetime)
- Health Advisories for over 200 contaminants have been published.
 - The HA Table was last updated in 2018.



United States
Environmental Protection
Agency

Office of Water
Mail Code 4204T
EPA 822-R-16-004
May 2016

Drinking Water Health Advisory for Perfluorooctanoic Acid (PFOA)

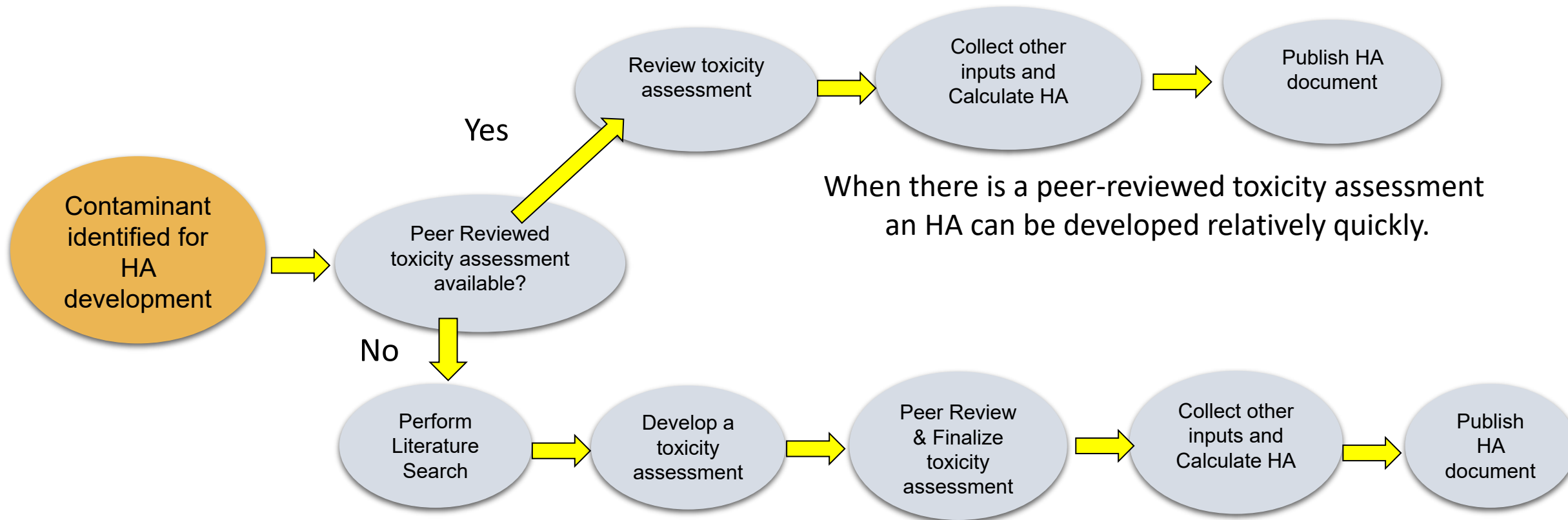
What is in a Health Advisory document?

1. Background on the contaminant
2. Summary of a toxicity assessment and critical effect
3. Calculation of HA using toxicity values, exposure factors, and a Relative Source Contribution (RSC)
4. Analytical methods to detect for the contaminant in drinking water
5. Treatment technologies to remove the contaminant from drinking water

What is a Toxicity Assessment?

- Summary of the potential health effects associated with exposure to a particular chemical
- Identifies the dose levels at which the health effects may occur in order to calculate **toxicity values**
- Toxicity values for oral exposure to a chemical are called **reference doses (RfDs)**
 - An estimate of a daily exposure to the human population, including sensitive subpopulations, that is likely to be without an appreciable risk of adverse effects during a lifetime
 - Uncertainty in the data is taken into account by including uncertainty factors in the RfD to protect public health
 - An RfD is a key input needed to develop a HA and is the most time-consuming step.

Health Advisory Development Process



When there is a peer-reviewed toxicity assessment an HA can be developed relatively quickly.

OW can develop a toxicity assessment for pollutants that do not have one.

Recent announcements about new HAs.

Driver: Availability of EPA toxicity assessments for different PFAS.

EPA released final Human Health Toxicity Assessments for “GenX Chemicals” (10/25/21) and PFBS (4/8/21)



Fact Sheet: Human Health Toxicity Assessment for GenX Chemicals

Summary

EPA is publishing the final version of its human health toxicity assessment for hexafluoropropylene oxide (HFPO) dimer acid and its ammonium salt, referred to as “GenX chemicals.” The assessment provides hazard identification, dose-response information, and derives toxicity values called oral reference doses (RfDs) for chronic and subchronic exposures to GenX chemicals. The assessment also increases the available federal health information about the large chemical class of per- and polyfluoroalkyl substances (PFAS) of which GenX chemicals are a part and is a key step toward EPA developing a national drinking water health advisory for GenX chemicals, which the agency committed to publish in Spring 2022. The agency previously published health assessments for three PFAS: perfluorooctanoic acid (PFOA; 2016), perfluorooctane sulfate (PFOS; 2016), and perfluorobutane sulfonic acid and related compound potassium perfluorobutane sulfonate (PFBS; 2021). Industry developed GenX chemicals to replace PFOA, a legacy PFAS. Policy makers can use the GenX chemicals toxicity assessment along with exposure information and other important considerations to determine if, and when, it is appropriate to take action to reduce exposure to GenX chemicals.

Background

What are PFAS?

PFAS are synthetic chemicals that have been manufactured and used by many different types of industries since the 1940s. PFAS are synthesized for many different uses including firefighting foams, coatings for clothes and furniture, and food contact substances. PFAS are also used in industrial processes and applications, such as manufacturing other chemicals and products. There are thousands of different PFAS, some of which have been more widely used and studied than others. PFOA and PFOS, for example, are two of the most widely used and studied chemicals in the PFAS group. These have been replaced in the United States with other PFAS, such as GenX chemicals, in recent years. Although PFAS chemical compositions vary, one common characteristic is that they break down very slowly and can accumulate over time in people, animals, and the environment. Because of their persistence, PFAS are sometimes referred to as “forever chemicals.”

What are GenX Chemicals?

GenX is a trade name for a processing aid technology used to make high-performance fluoropolymers without the use of PFOA. HFPO dimer acid and its ammonium salt are the major chemicals associated with the GenX processing aid technology. PFOA has eight carbon atoms and is considered a “longer chain” PFAS while GenX chemicals have six carbon atoms and are considered “shorter chain.” Because GenX chemicals can be used as a replacement for PFOA, they may be used in a similar fashion in the manufacture of the same or similar

Fact Sheet: Toxicity Assessment for PFBS

Federal, state, tribal, and local governments are working together to address per- and polyfluoroalkyl substances (PFAS) in the environment. PFAS are synthetic chemicals used in a wide range of products because of their ability to repel water, grease, and oil. EPA is announcing the finalization and posting of the toxicity assessment for perfluorobutane sulfonic acid (PFBS) and its potassium salt, potassium perfluorobutane sulfonate (K+PFBS), to increase the amount of information the public has on PFAS. The PFBS toxicity assessment can be used along with exposure information and other important considerations to assess potential health risks to determine if, and when, it is appropriate to address this chemical. The PFBS toxicity assessment adds to existing EPA health assessments of the legacy PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), which are no longer widely produced in the United States but may still be found in the environment.

Questions and Answers

What are PFAS?

PFAS: Per- and polyfluoroalkyl substances (PFAS) are a group of synthetic chemicals that have been in use since the 1940s and are (or have been) found in many consumer products like cookware, food packaging, and stain repellants. PFAS manufacturing and processing facilities, airports, and military installations that use firefighting foams are some of the main sources of PFAS. PFAS may be released into the air, soil, and water, including sources of drinking water. PFOA and PFOS are the most studied PFAS chemicals and have been voluntarily phased out by industry, though they are still persistent in the environment. There are many other PFAS, including PFBS in use throughout our economy.

PFBS: PFBS is a replacement chemical for PFOS, a chemical that was voluntarily phased out by the primary U.S. manufacturer by 2002. PFBS has been identified in the environment and consumer products, including surface water, wastewater, drinking water, dust, carpeting and carpet cleaners, and floor wax.

How are people exposed to PFBS?

People can be potentially exposed to PFBS through a number of different pathways, including contaminated drinking water, inhaling polluted air, and contact with PFAS containing products. EPA’s final assessment for PFBS focuses solely on the potential human health effects associated with oral exposure; it does not consider potential cumulative (mixture) effects or possible interactions with other PFAS and/or other chemicals.

Development of new HAs for PFAS

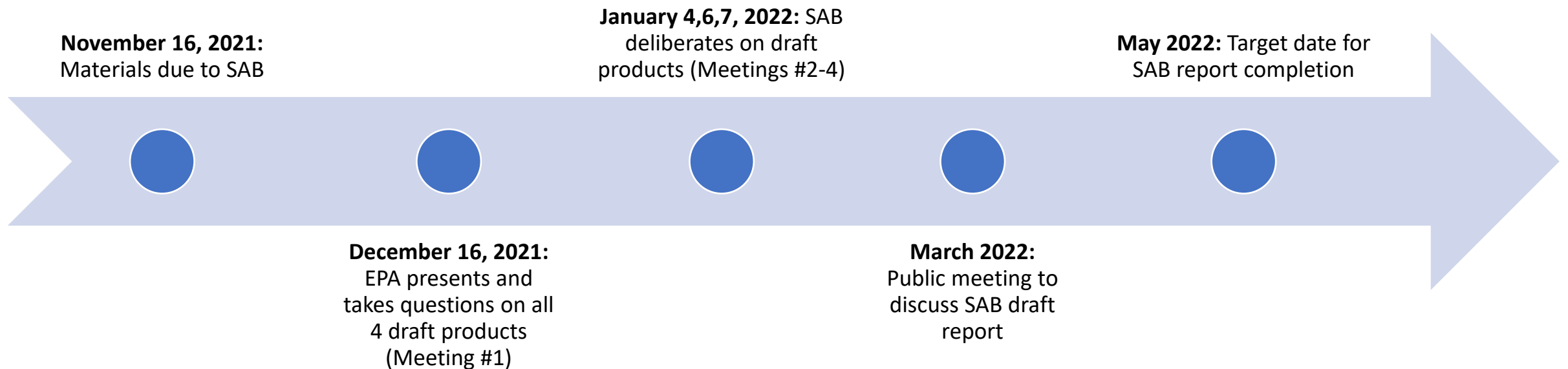
- PFAS Strategic Roadmap (October 18, 2021)
 - Publish Health Advisories for Perfluorobutane sulfonic acid (PFBS) and GenX chemicals (HPFO) **(estimated for Spring FY22)**
 - Based on final EPA toxicity assessments.
 - The Agency will develop accompanying fact sheets in different languages.
 - EPA will develop health advisories as the Agency completes toxicity assessments for additional PFAS.

Development of new HAs for PFAS

- Updated HAs for PFOA and PFOS

- EPA released draft documents for peer review by the Science Advisory Board in December 2021 and January 2022
- These documents include updated toxicity assessments for PFOA and PFOS
- The draft toxicity values are significantly lower than those published by EPA in 2016, based on new data and tools.
- EPA will move as quickly as possible to issue updated health advisories for PFOA and PFOS that reflect this new science taking into consideration input from the SAB.

Timing of SAB PFAS Peer Panel Public Meetings



NDWAC input on new PFAS HAs.

Driver: Availability of EPA toxicity assessment for different PFAS.

National Drinking Water Advisory Council (NDWAC) Recommendations on Health Advisories

In 2018 EPA received input from NDWAC on the HA program

- A Key NDWAC recommendation was “EPA should consider the meaningful input of stakeholders and be more public when developing HAs . . . EPA should keep stakeholders apprised of which HAs they are working on and why, and regularly communicate their status in the development process”
- Outreach to Stakeholders pre-release of toxicity assessments for GenX chemicals and PFOA/S:
 - OW reached out to states who had developed or were in the process of developing guidance for GenX chemicals to provide a summary overview.
 - OW reached out to stakeholders prior to the release of documents on PFOA and PFOS for SAB review.
 - OW provided communications materials in advance of the release of the GenX toxicity assessment to help consumers understand what a toxicity assessment is and to help states respond to anticipated stakeholder questions.

National Drinking Water Advisory Council (NDWAC) Recommendations on Health Advisories

- Another key recommendation was that “[EPA’s HA prioritization process] *could be improved with meaningful input from stakeholders*” and “*there should be regular opportunity for input from stakeholders when EPA is considering developing an HA. An annual invitation for input from stakeholders was suggested*”
 - EPA is developing four HAs in FY22 (two new and two updated) and will develop HAs for other PFAS as toxicity assessments are finalized by EPA. This is a significant resource commitment.
 - EPA will update the HA website to indicate new HAs we are working on in FY22.
 - We will solicit input on new HA development we can consider for future years at the Spring NDWAC meeting.

Regarding revision of HAs, NDWAC recommended “*a review when new information becomes available and a periodic review, perhaps every 5-7 years of all HAs to see if revision is warranted*”

- We are planning to update the HA table and will talk to you about that effort at the Spring NDWAC meeting.

QUESTIONS

