

Speakers



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Overview

Review 2021 Drinking Water Rule for PFAS
DOH Rule Implementation
New EPA health guidance
Next steps for SBOH

Briefings

- Yakima Training Center
- New ECY Cleanup Values for PFAS
- Planning for a state PFAS forum

Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Nonstick, Stain and Water Resistant, Heat Stable



Some PFAS are PBTs

Persistent
in the
environment

Bioaccumulate
in humans

Toxic
at relatively
low (ppt)
levels

Health Concerns

In Laboratory Animals

- Liver toxicity
- Developmental toxicity
- Reproductive toxicity
- Immune toxicity
- Endocrine disruption
- Tumors in liver, pancreas, testes

In Humans

- Increased cholesterol levels
- Altered liver enzyme levels
- Reduced immune response to vaccines
- Lower birth weight
- Blood pressure problems during pregnancy
- Increase risk of thyroid disease
- Increased risk of cancer (kidney and testicular)-PFOA

Citizen Petition 2017

Requested state drinking water standards for PFAS based on:

- Serious public health threat
- Known occurrence in state drinking water supplies
- Need to address more than two compounds
- Need for more comprehensive water testing



Timeline of PFAS Drinking Water Rule



2021 State Action Levels (SALs)



Features

- Sets action levels for 5 PFAS.
- Requires PFAS testing by most Group A water systems.
- Requires notification of customers.
- Requires follow-up monitoring
- Effective date: Jan 1, 2022.
- Mitigation of water is not required but systems are encouraged to follow public health advice and funding support is available.

Drinking water Contaminant	SAL (parts per trillion)
PFOA	10
PFOS	15
PFNA	9
PFHxS	65
PFBS	345

Monitoring Requirements

If PFAS results from last year are:

Low

**Monitoring =
1 time every
3 years**

Medium

**Monitoring =
Annually**

High

**Monitoring =
Quarterly**

Public Notice Requirements

Water Systems that exceed a SAL

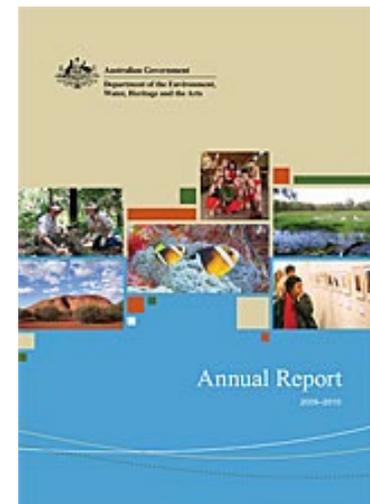
Inform customers about the health effects of the contaminant

What, if anything, are they doing to address the issue

What consumers can do to reduce their exposure

Community water systems with a detection

Include any PFAS detections in their annual consumer confidence report





A SAL is a Bridge to an MCL

- SALs **require** testing and public notification and **guide** public health action.
- Testing will help define scope of problem and necessary funding and resources.
- Testing data is needed to develop state cost-benefit analyses for Maximum Contaminant Levels (MCL).

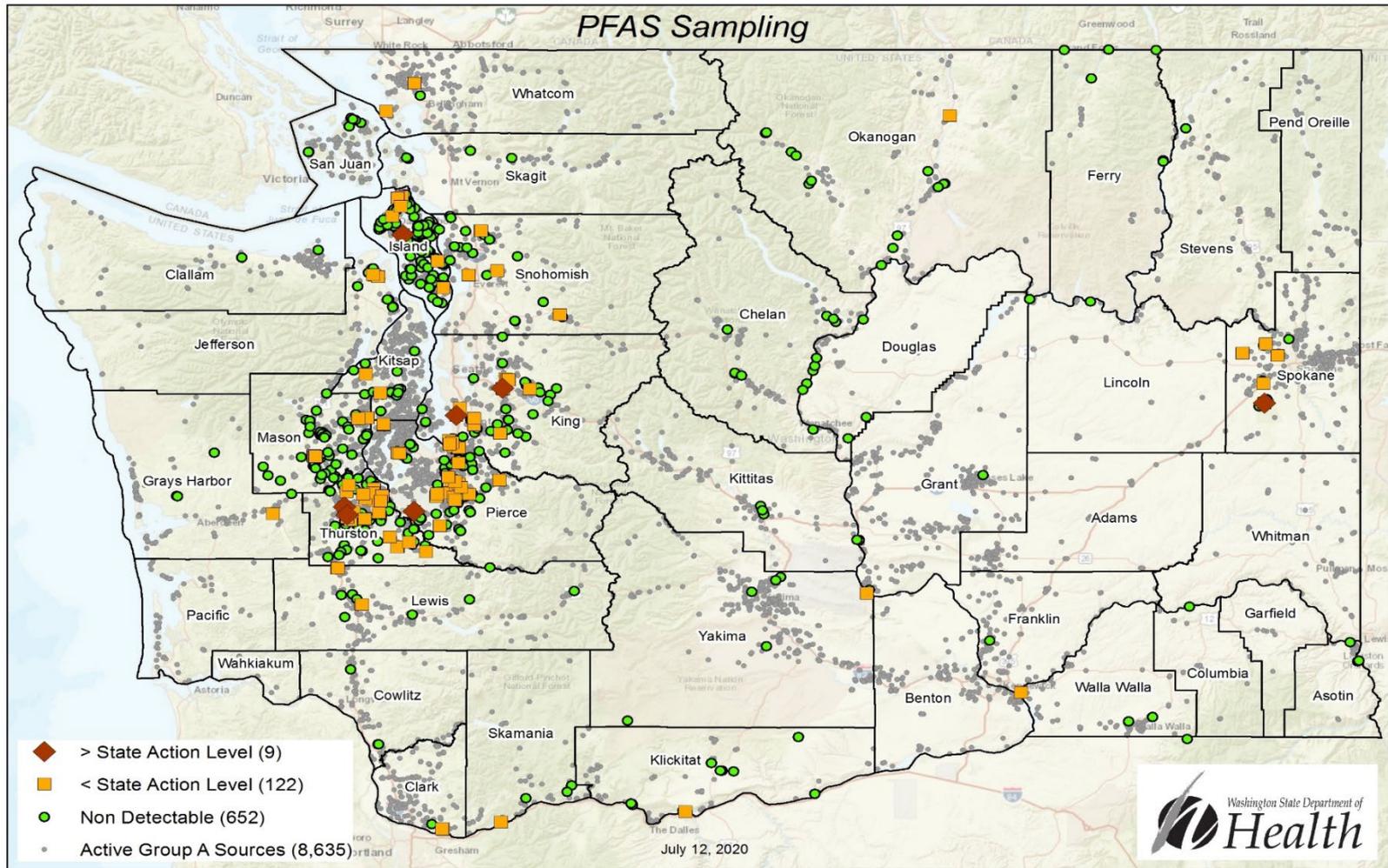
Implementation of the Rule

- Funding for water testing and water treatment
- Voluntary free testing program
- Early water testing results

2022—Voluntary Water Testing Program

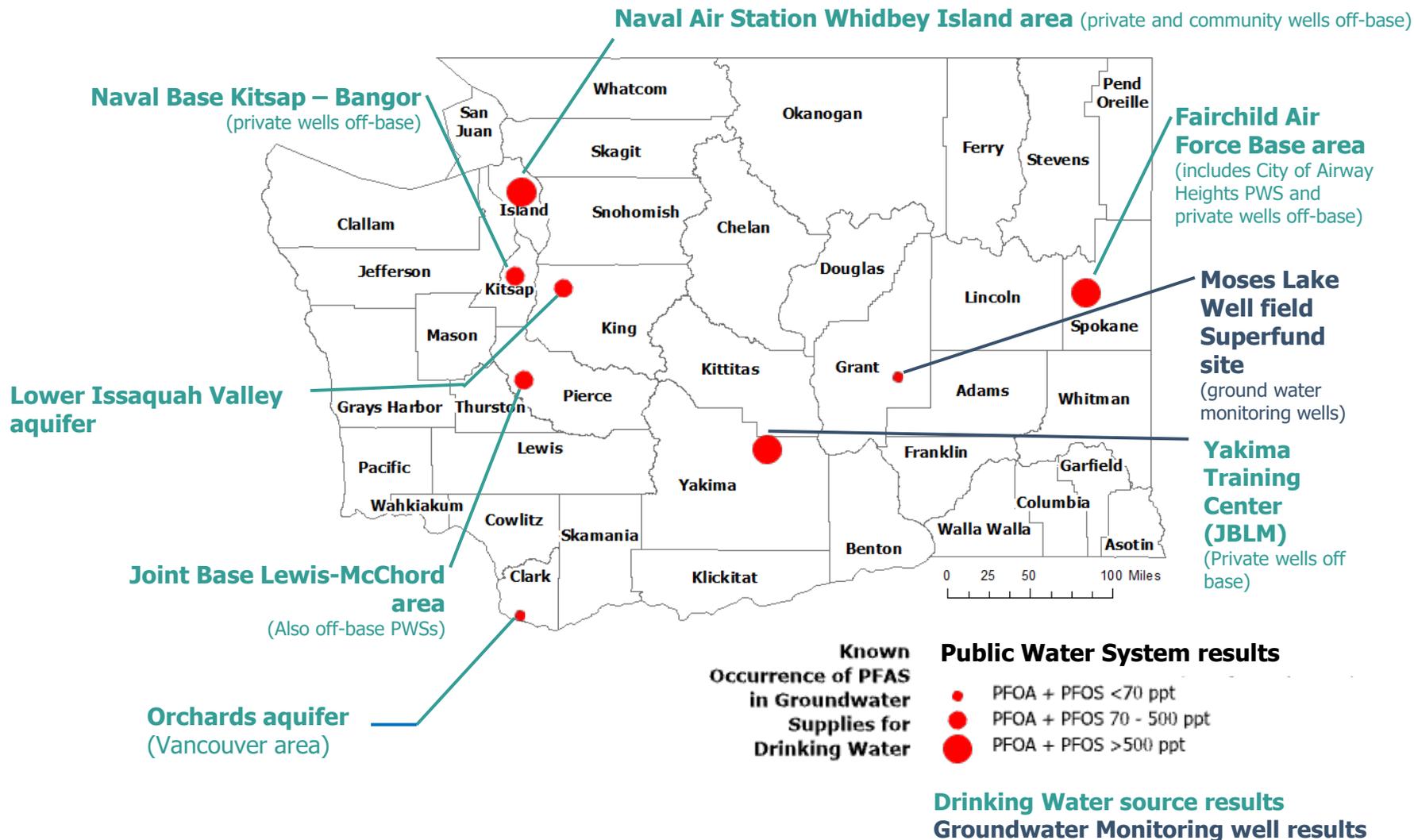
- Offered in advance of required testing (2023-2025)
- Summary (as of July 15, 2022)
 - 427 water systems have tested (659 sources tested)
 - 7 systems (9 sources) had a SAL exceedance
 - 131 sources had PFAS detections
 - 80 percent of sources tested were < detection limits (~2 ppt)

PFAS in Drinking Water and Ground Water



Source of data: PFAS Detections reported to Sentry Database—primarily voluntary testing.

PFAS in Drinking Water and Ground Water



Source of data: voluntary testing by military bases and public water systems.

How Water Systems are Responding to Detections

- **Community Water System responses**
 - Notifying public of SAL exceedance (required)
 - Annual notification for PFAS detections (required)
 - Removing sources from service
 - Exploring treatment alternatives
- **DOD response**
 - Interim actions to provide alternate water for drinking and cooking when PFOS +PFOA >70 ppt
 - Understanding impacts of changing science
 - Messaging to communities
 - Extent of investigation for long term solutions

New Health Guidance From EPA



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EPA Announces New Drinking Water Health Advisories for PFAS Chemicals, \$1 Billion in Bipartisan Infrastructure Law Funding to Strengthen Health Protections

Agency establishes new health advisories for GenX and PFBS and lowers health advisories for PFOA and PFOS



NEWS

EPA finds no safe level for two toxic 'forever chemicals,' found in many U.S. water systems

Studies have linked these 'forever chemicals' to different types of cancer, low birthweights and other health ailments. This will set off alarm bells, one expert said.

NATIONAL



EPA warns that even tiny amounts of chemicals found in drinking water pose risks

June 15, 2022 · 11:47 AM ET

THE ASSOCIATED PRESS



Chemours challenges US EPA drinking water advisory for PFAS

Company raises argument from a recent Supreme Court ruling

by Cheryl Hogue
July 14, 2022

HAL vs. SAL vs. MCL

HAL

Set at the
Public Health
Goal

**Equivalent
to MCLG**

SAL

Set as close
to Public
Health Goal
as feasible

**Considering:
Technical
feasibility**

MCL

Set as close
to Public
Health Goal
as feasible

**Considering:
Technical
feasibility
Cost-benefit**

HAL = Health Advisory Level

SAL = State Action Level

MCLG = Maximum Contaminant Level Goal

MCL = Maximum Contaminant Level

Evolving Health Guidance Values (ng/L)

Changes over time largely reflect expanding and strengthening scientific understanding of adverse impacts of PFAS.

PFAS	EPA HALs 2016	WA SALs 2021	EPA HALs 2022
PFOA	70	10	<i>0.004</i>
PFOS	70	15	<i>0.020</i>
PFHxS	-	65	-
PFNA	-	9	-
PFBS	-	345	<i>2,000</i>
GenX	-	-	<i>10</i>

Italics indicate an interim value

SAL - State Action Level; HAL – Health Advisory Level

SALs are set to be Health Protective

A level in water expected to be without appreciable health effects over a lifetime of exposure, this includes sensitive groups.



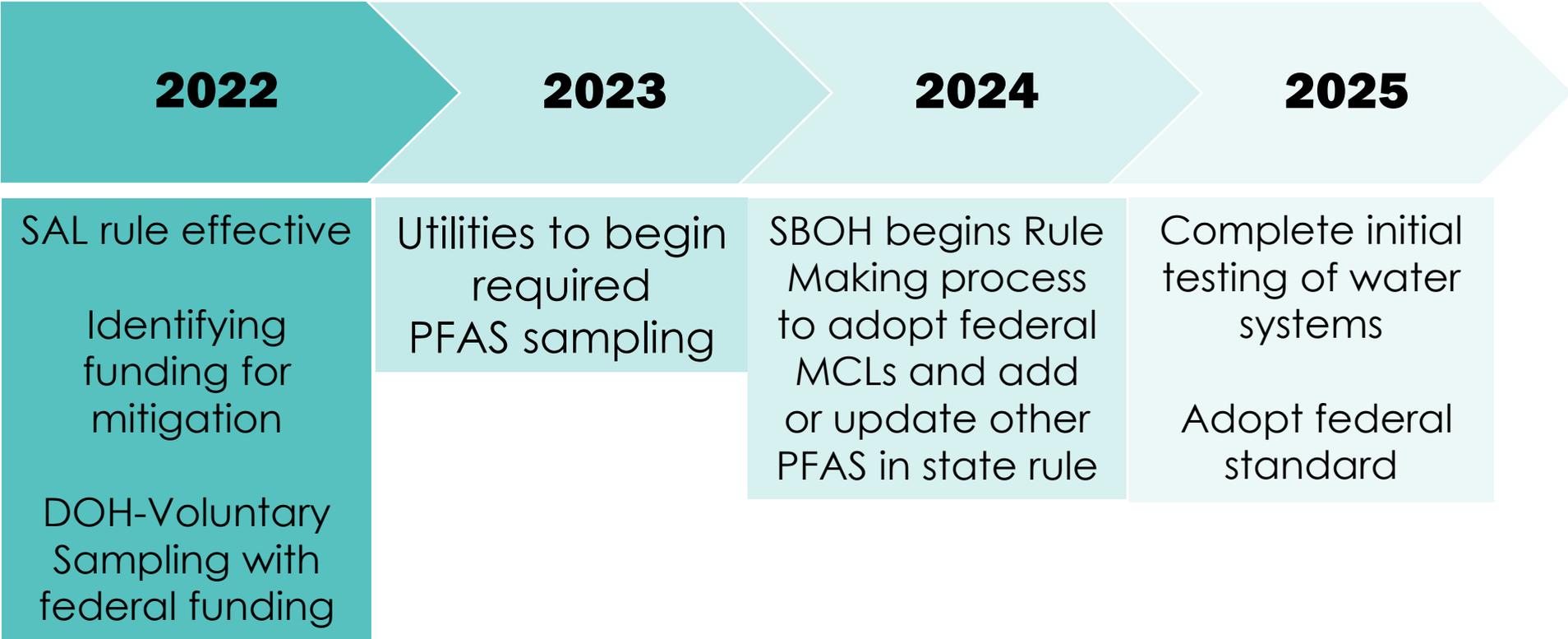
Impacts to Risk Communication

- New interim PFOA and PFOS HALs
 - Any detections in drinking water are above what EPA recommends for a lifetime of exposure in residential drinking water.
- EPA recommends that people with detectable PFOA and PFOS be informed and told how to reduce their exposure.
- Impacts a narrow range of results (between WA SALs and detection limit of 2 ppt in drinking water).

DOH Recommends

- Update public messaging to relay new EPA advice
- Continue to regulate with SALs for now
 - Prefer WA SAL for PFBS
 - Interim HALs for PFOA, PFOS are still undergoing expert review and may change
- Follow the expert review, evaluate final EPA assessment
- When EPA finalizes PFOA and PFOS numbers and proposes the MCL (in late 2022):
 - Review EPA's analyses of technical feasibility, costs-benefits
 - Update the SBOH and present options for SAL adjustment

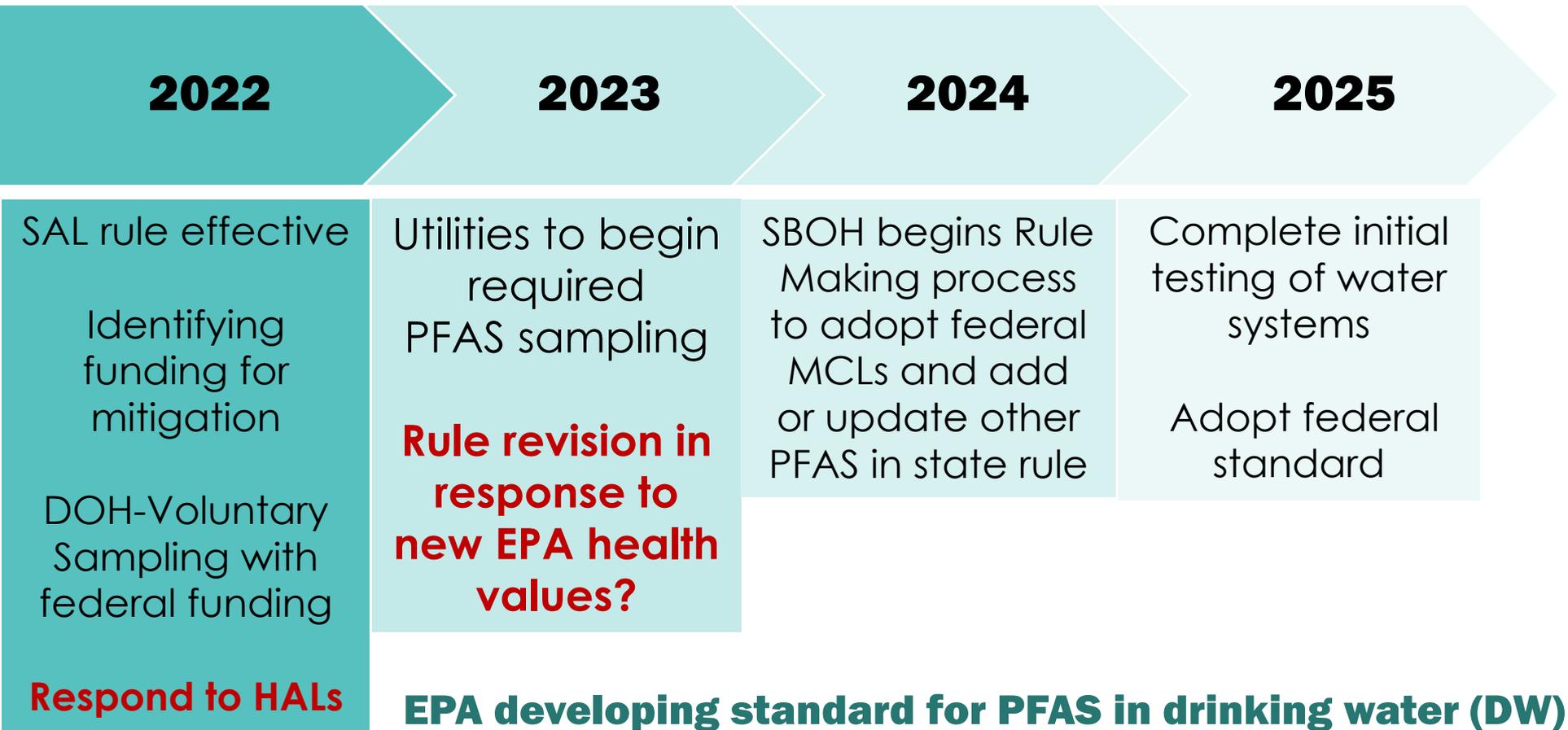
State Activities – PFAS in Drinking Water



EPA developing standard for PFAS in drinking water (DW)



State Activities – PFAS in Drinking Water



2022

2023

2024

2025

SAL rule effective

Identifying funding for mitigation

DOH-Voluntary Sampling with federal funding

Respond to HALs

Utilities to begin required PFAS sampling

Rule revision in response to new EPA health values?

SBOH begins Rule Making process to adopt federal MCLs and add or update other PFAS in state rule

Complete initial testing of water systems

Adopt federal standard

EPA developing standard for PFAS in drinking water (DW)

Issued 4 new HALs

Propose PFAS Standard for DW by Dec 2022

Adopt PFAS Standard for DW by Dec 2023

Next Steps for SBOH Consideration

- Provide input on DOH's current response
- Possible action in January 2023 to revise rule based on new health information
 - Consider options for rule revision
 - Consider rule-making to adopt revision

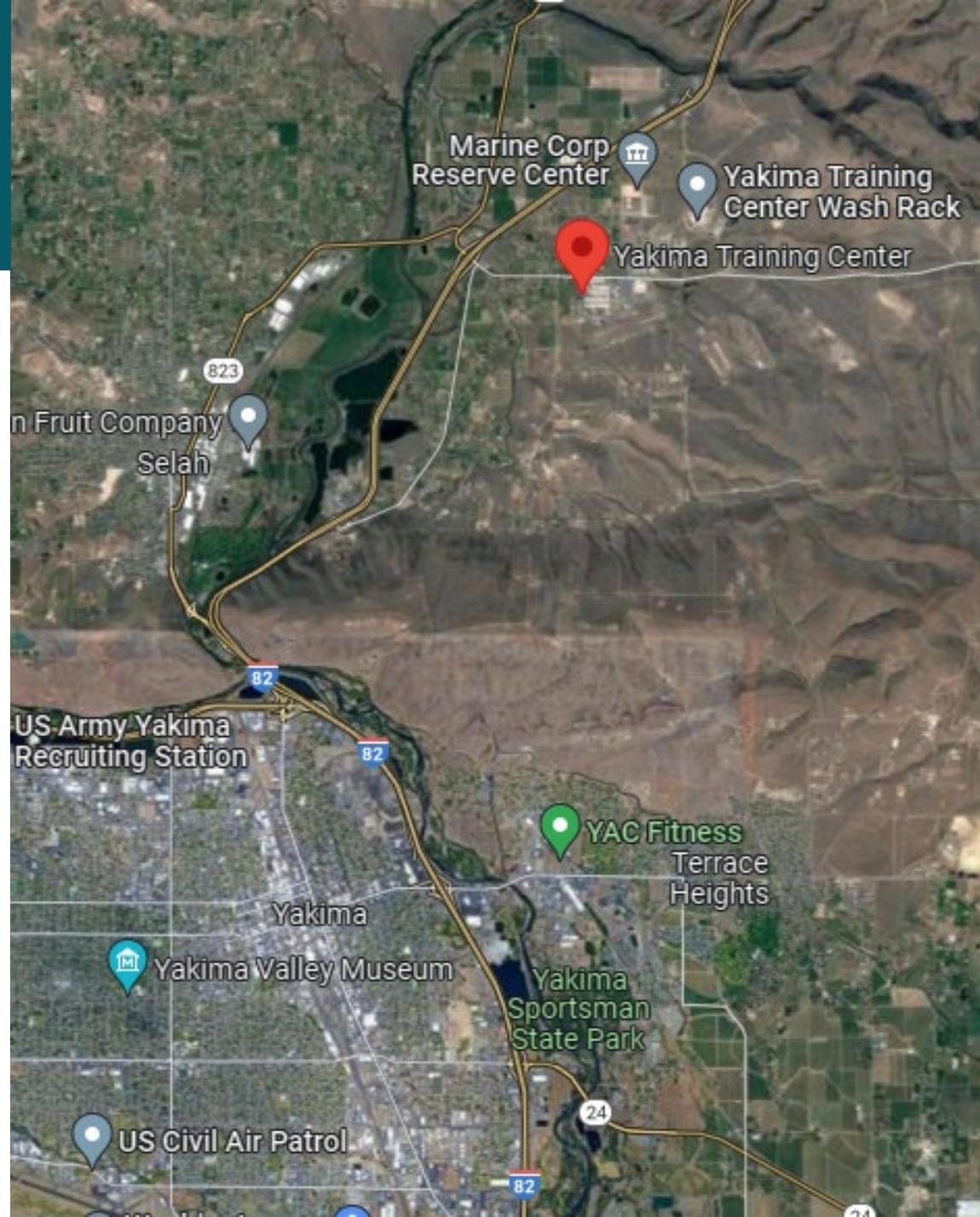
Briefing

Three PFAS activities in WA

Yakima Training Center

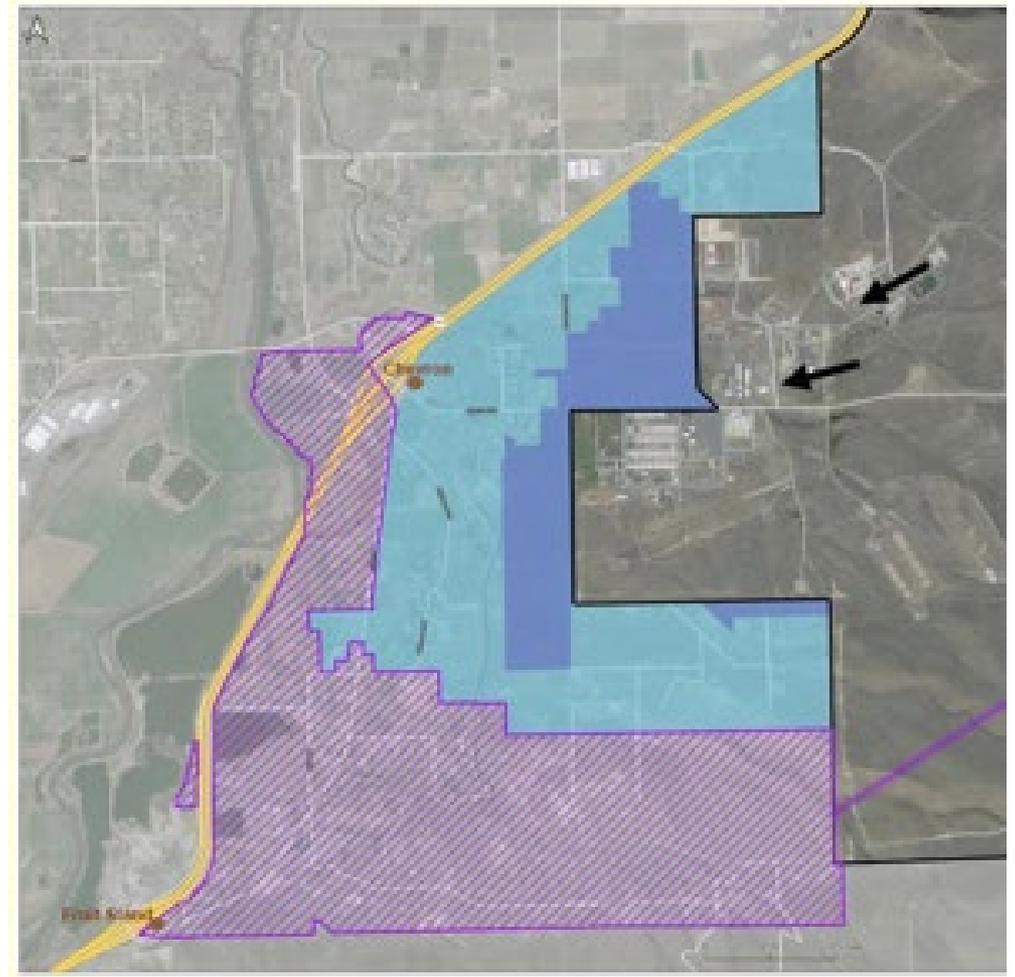
PFAS in drinking water

Rural community west of base—private wells



Yakima Training Center — PFAS investigation

- 2020 on-base groundwater testing: highest detection PFOA + PFOS ~50,000 ppt
- 2021-22 **Phase 1 & 2** off-base testing of drinking water
- 38 private wells serving 56 households > 2016 EPA HAL.
- 21 additional wells exceeded a WA SAL
- Highest detection PFOS +PFOS: ~1600 ppt
- 2022 **Phase 3** testing



State Response to Yakima Training center

Addressing community's health questions






PFAS in drinking water: Safety questions about gardening, livestock, and pets

What are PFAS chemicals?
Per- and polyfluoroalkyl substances (PFAS) are a group of chemicals that have been used for decades in many products, such as firefighting foam, water resistant clothing, stain-resistant carpets, non-stick pans, and food packaging.

Why are we concerned about PFAS?
PFAS don't break down naturally and some can build up over time in animals, fish, birds, plants, and people. Studies in laboratory animals (rats, mice, monkeys) have shown that PFAS can be toxic to animals. Studies of people with workplace or environmental exposures suggest that PFAS may also harm human health.

Washington state recently adopted state action levels for five PFAS compounds in drinking water. State action levels tell us when to take action to protect people's health. However, these action levels only apply to people, not pets and livestock. Animals may react differently than humans to PFAS. Animals also differ in body weight, water intake, and how quickly PFAS leave their body.

Is my water safe for pets and livestock to drink?
We don't know yet. Safety guidelines for pets and livestock have not been established for PFAS in drinking water. More research is needed to know if PFAS levels in Washington drinking water can harm pets or livestock.

In laboratory animals (rats, mice, monkeys) some PFAS can injure the liver, kidney, thyroid, and reproductive organs. They can also weaken immune response, affect development, and cause tumors. Most of these effects have been observed at relatively high levels of exposure. We don't know if they will happen in other animals and at the lower levels of exposure to PFAS in drinking water. PFAS build up over time in the body, so there may be higher levels of PFAS in animals that live longer. If you are concerned about your animal's health, talk to your veterinarian.

How can I protect my pets and livestock?
If the water you or your pet or livestock has PFAS, you can reduce their exposure by providing a clean source of drinking water.

X Avoid Swallowing PFAS

 Drinking Water	 Baby Formula	 Coffee and Tea
 Rice	 Pasta	 Soup

The main ways that PFAS get from tap water into your body:

- drinking the water
- drinking beverages made with the water like infant formula, coffee, or tea
- eating food prepared with the water

The best way to prevent PFAS from getting in your body is to avoid swallowing them

Skin Contact is a Minimal Concern

 Bathing	 Showering	 Hand Washing	 Washing Dishes	 Laundry
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Touching the water is OK. PFAS in water don't get through your skin very well. Touching the water while showering, bathing, doing dishes or laundry is not an exposure of concern.



DOH 825-037 May 2022
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Coordination with

- Army
- ECY, WSDA
- Yakima Health District
- ASTDR
- UW Medicine
- Funding gap for private wells, burdens the community and hinders health equity

State PFAS Stakeholder forum

Topics

- Forum to discuss solutions to PFAS in surface and drinking water
- **Intended audience**
 - Drinking water purveyors and private wells owners
 - Others who investigate, mitigate, or clean up PFAS
 - State and local governments
 - Any interested parties (communities)

WA Department of Ecology – Clean Up Values



Focus on: PFAS Cleanup Levels

Photo credit: jplenio on Pixabay

Purpose and background

This focus sheet provides the Washington State Department of Ecology's (Ecology's) recommended soil and groundwater cleanup levels for part of a group of harmful compounds known as per- and polyfluoroalkyl substances, or PFAS. These compounds include:

1. PFOA, or perfluorooctanoic acid,
2. PFOS, or perfluorooctane sulfonic acid,
3. PFNSA, or perfluorononanoic acid,
4. PFHxS, or perfluorohexane sulfonic acid,
5. PFBS, or perfluorobutane sulfonic acid, and
6. HFPO-DA (GenX), or hexafluoropropylene oxide dimer acid.

The Washington State Department of Health (DOH) issued a final rule that included groundwater State Action Levels (SALs) for the first five PFAS compounds listed above, which became effective on January 1, 2022. The Department of Health calculated the SALs using peer-reviewed non-cancer reference doses (RfDs) that represent the best available science. They used RfDs to establish the SALs because there are limited data available to support a quantitative assessment of cancer risk for PFAS compounds.

At a future date, we will release our recommended cleanup levels for terrestrial ecological, surface water, sediments, and air quality.

Recommended groundwater cleanup levels

For PFAS with SALs, Ecology recommends using the SALs as the appropriate groundwater cleanup levels. For chemicals without SALs, Ecology recommends using RfDs developed by EPA to calculate the appropriate cleanup level. The recommended groundwater cleanup levels for the first five compounds in Table 1 are the DOH SALs.

We calculated the recommended groundwater cleanup level for HFPO-DA using Model Toxics Control Act (MTCA) Equation 720-1¹ and EPA reference doses (RfDs).

For comparison purposes, we've also included the Environmental Protection Agency's (EPA) Health Advisory Levels for PFOA, PFOS, PFBS, and HFPO-DA. EPA is still evaluating the RfDs they used to develop the interim Health Advisory Levels for PFOA and PFOS, and it's possible these levels could be revised in the future. EPA is also developing RfDs for several other PFAS compounds, which may lead to additional groundwater health advisories.

Table 1: Recommended groundwater cleanup levels

PFAS Compound	Recommended Groundwater Cleanup Level	EPA Health Advisory Level
PFOA	10 ng/L	0.004 ng/L
PFOS	15 ng/L	0.02 ng/L
PFNA	9 ng/L	None
PFHxS	65 ng/L	None
PFBS	345 ng/L	2,000 ng/L
HFPO-DA (GenX)	24 ng/L	10 ng/L

Note: On June 15, 2022, EPA issued "interim" Health Advisories for PFOS and PFOA, and final Health Advisories for PFBS and HFPO-DA. Ecology is not using the EPA Health Advisory Levels as recommended cleanup levels because: 1) the levels for PFOA and PFOS are interim and subject to change, 2) the PFBS level exceeds the DOH SAL, and 3) the approach used to determine the level for HFPO-DA is not consistent with the process set out in MTCA.

- In 2021, ECY announced that PFAS are Hazardous Substances under MTCA
- In 2022 - ECY established recommended clean-up values for 6 PFAS in groundwater and soil
- <https://ecology.wa.gov/Spills-Cleanup/Contamination-cleanup>

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