Community Report

Background of PFAS

What is PFAS?

- PFAS (per- and polyfluoroalkyl substances) is a group of 4,700 different chemicals.
- They are notable because they are very resistant to oil, water, heat, and chemical reaction.
- That's made PFAS useful in many consumer products (like Teflon, ScotchGuard, Gore-Tex) that were "non-stick," "stain resistant," or needed to resist oil.
- PFAS is also in "aqueous fire fighting foam" used to put out fires involving highly flammable materials like jet fuel and munitions.

Where does PFAS in water systems come from?

1. Manufacturing sites where PFAS was produced or used to make products

2. Firefighting foam from military bases or airports has leached into the ground and into underground aquifers

PFAS in Washington is from firefighting foam—there are no manufacturing sites

PFAS is everywhere

- The same properties that make PFAS useful make it persist in the environment for a very long time—it's sometimes called a "forever chemical."
- They have been used since the 1940s.
- In the early 2000s, manufacturers found PFAS in the blood of polar bears and other animals in remote areas—PFAS had found its way to all corners of the earth.
- Studies estimate around 98% of people in the US have PFAS in their blood.

Types of PFAS–PFOS & PFOA

- The most well known PFAS are PFOS and PFOA.
- They are the only PFAS that have a health advisory limit from EPA (more about that later).
- Where drinking water supplies have levels above the US EPA lifetime health advisory level (70 ppt), they can be the largest ongoing source of PFAS into people's bodies because other sources have been reduced or eliminated.
- Over the last 35 years, measuring from ppm, then ppb, and now ppt.
- 70 ppt is like 7 gains of sand in an Olympic size pool.

What does PFAS do in our bodies?

- PFOS and PFOA *may* affect numerous body systems, possibly causing:
  - Increased cholesterol
  - Reduced birth weights
  - Reduced immune response to vaccines
  - Increased liver enzymes (indicating liver damage)
  - Testicular and kidney cancer
  - Suspected link to reproductive and developmental effects, altered immune function, altered hormone levels, and other cancers
- More research is needed to better understand how it impacts health.

So why is PFAS only being regulated now?

1940s
Manufacture and use of PFOS and PFOA begin

1990s
3M develops capability to test very low levels and finds PFOS everywhere

2000s
Manufacturers voluntarily remove PFOS and PFOA from use, often substituting other kinds of PFAS

2009
EPA establishes lifetime health advisory levels for PFOS and PFOA

2012
EPA requires testing of water supplies as part of the Unregulated Contaminant Monitoring Rule (UCMR)

2013 to 2015
Numerous systems across the country are sampled for PFOS, PFOA, and four other PFAS

2017
Washington State decides to begin process to regulate PFAS

EPA regulations

- Lifetime health advisory of 70 ppt for combination of PFOS and PFOA established in 2009. There is currently no federal MCL or regulatory limit for PFOS or PFOA.
- All regulations for PFAS are designed to protect the most vulnerable populations over a lifetime of exposure in drinking water.
- In February 2020, EPA made a draft decision to regulate PFOS and PFOA—these could be regulated individually, as groups, or based on treatment technique.
- The federal rule making process usually takes years.

Washington State Department of Health Regulations

DRINKING WATER

State Board of Health decides a rule is necessary & Ecology started work on environmental limit

OCT 2017

Department of Health (DOH) publishes proposed Draft language

JUNE 2019

Publish Draft Rule (Delayed because of COVID)

2020?

Final Rule

2021?

OTHER SOURCES

2016

Washington starts developing a PFAS Chemical Action Plan

2018

Legislature passes laws regulating firefighting foam and food packaging

2019

Draft PFAS Chemical Action Plan published

Washington proposed limits are similar to other states with PFAS limits.

State	PFOS	PFOA	PFNA	PFHxS	PFBS	Other
California (Aug 2019)						
-- Notification Level	6.5 ppt	5.1 ppt				
-- Response Level	40 ppt	10 ppt				
New Jersey (July 2019)						
-- MCL	13 ppt	14 ppt	13 ppt			
Washington (proposed)						
-- Guidance Level	15 ppt	10 ppt	14 ppt	70 ppt	1,300 ppt	
Minnesota						
-- Health Guidance	15 ppt	35 ppt		47 ppt	2,000 ppt	PFBA – 7,000 ppt
Vermont (May 2019)						
-- MCL	20 ppt combined limit PFOS, PFOA, PFHxS, PFNA and PFHpA					
Colorado (July 2020)	70 ppt combined					

PFAS and Lakewood Water

LAKEWOOD WATER DISTRICT

PFAS Background

- Summer of 2016, JBLM press release 5 wells with levels PFAS wells turned off
- 3 wells on McCord
- 2 wells on Ft Lewis
- District started sampling in August 2016 very low levels
- Confined to shallow aquifer
- Communicating to customers through newsletter, annual water quality & business report, and website

What about Lakewood Water District?

"Is Lakewood Water Districts water safe to drink?"

Yes—the water continues to be safe and is meeting all current regulations and public health guidance.

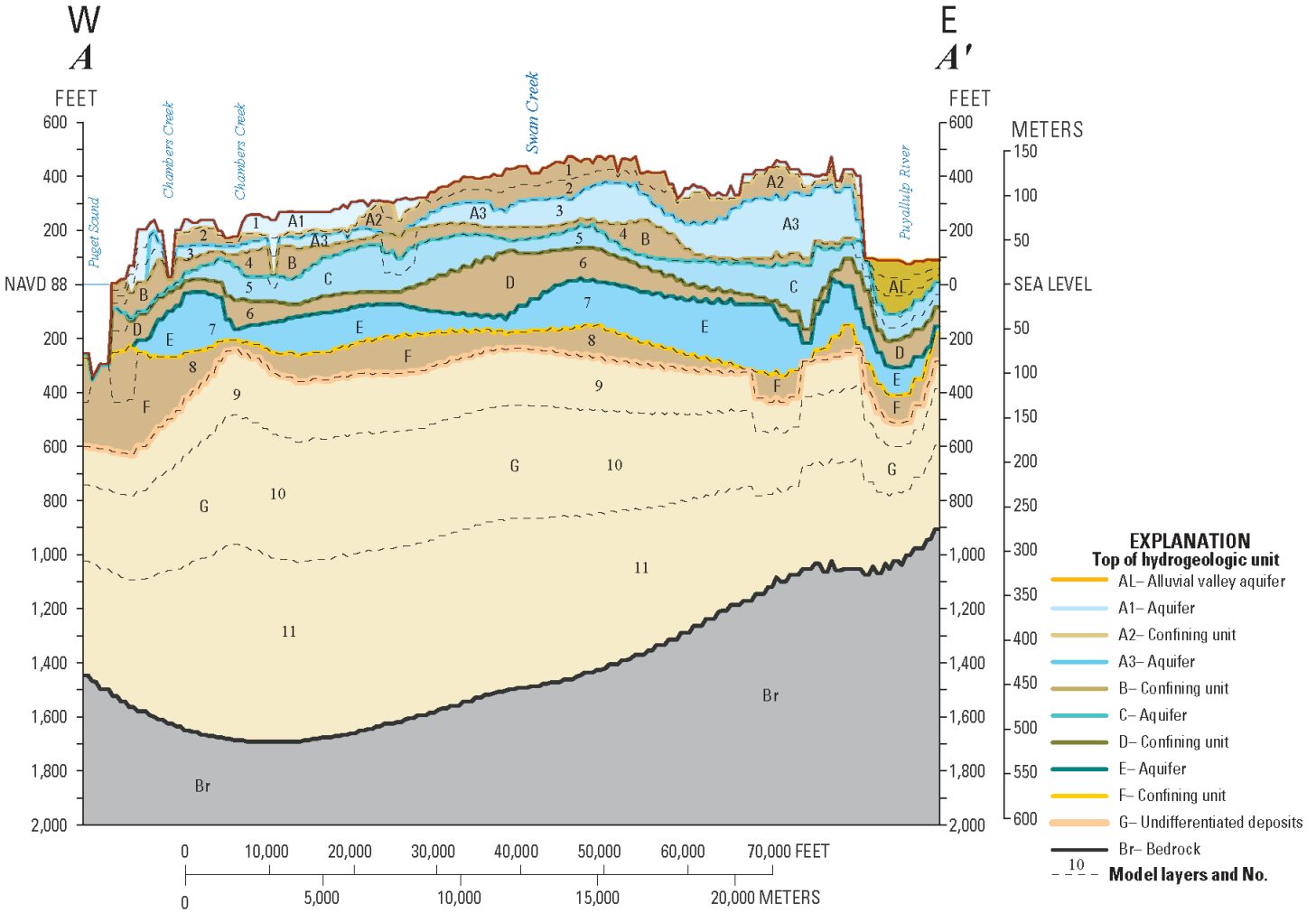
10 wells effected

2 wells added filtration

1 well turned off, designing filtration

7 wells below EPA's LHAL

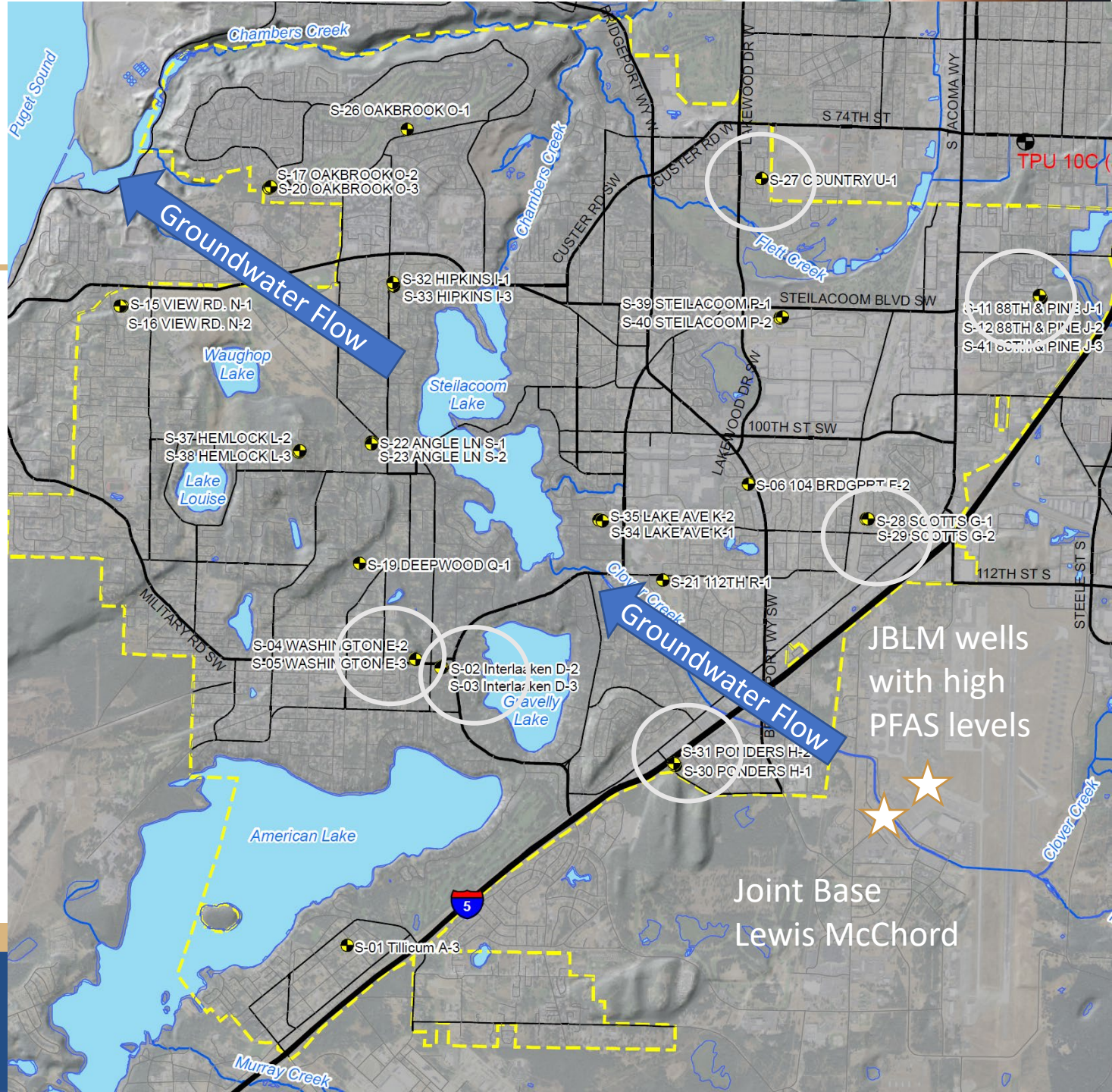
Lakewood Water District's Water System



Lakewood has 31 wells drawing from four aquifers

Only the most shallow aquifer is known to contain PFAS—affecting 7 wells

PFAS in the regional groundwater supply to the District's wells came from firefighting foam used and disposed at Joint Base Lewis McChord.

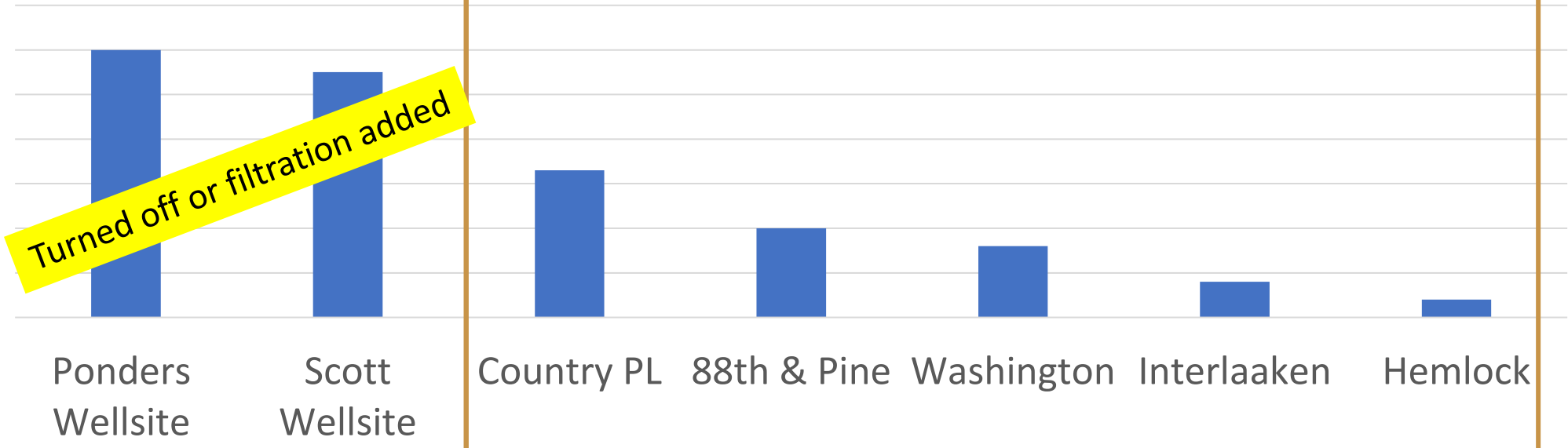


The seven affected wells vary in their PFAS concentrations

PFOS/PFOA close to or exceeding EPA health advisory levels

PFOS is at the highest concentration relative to regulatory levels

PFAS below the EPA lifetime health advisory level



Lakewood WD is taking action on four strategies

Protecting Health
by regularly testing water supply wells for PFAS and filtering or turning off wells that approach the EPA's lifetime health advisory level for PFAS in drinking water.

Reducing Costs
for customers by seeking every avenue of funding to help pay for projects necessary to respond to PFAS in the District's regional groundwater sources.

Lakewood WD is taking action on four strategies

Ensuring a Reliable Water Future
by conducting a comprehensive evaluation on maintaining a safe water supply while addressing PFAS.

Finding Long-term Solutions
by working closely with the State of Washington and others on new rules for water treatment and the long-term cleanup of PFAS sites.

Protecting Health
Actions at Ponders Wellsite

Ponders was the first wellsite to approach EPA lifetime health advisory levels

- The well was immediately turned off and removed from service
- It took around 18 months to design and install a granular activated carbon (GAC) treatment system—the project was completed in November 2019.
- GAC is a highly effective treatment—there is no detectable PFAS left in GAC-treated water at Ponders.

Protecting Health
Actions at Scotts Wellsite

Scott Wellsite has one well with PFAS levels slightly above the EPA lifetime health advisory levels.

- The well has also been taken turned off and taken out of service.
- An additional new well was drilled in the hopes of increasing capacity of the wellfield with non-PFAS impacted water.
- New well has no PFAS but has elevated levels of iron and manganese and not enough capacity to reduce the overall level of PFAS from the wellfield (blending).
- The District is designing a GAC filtration for this wellfield (2 wells) and will still use the new well for additional capacity.

Reducing Costs – Lawsuit to recover costs from the US government and PFAS manufacturers

- The District filed a lawsuit July 16 against the US Government and the 13 manufacturers of firefighting foam containing PFAS.
- The lawsuit seeks to recover costs that Lakewood Water District has incurred and may incur to complete and maintain water quality protection projects in response to PFAS.
- The lawsuit seeks to recover past, current, and future costs related to the District's water protection projects in response to PFAS.
- The costs claimed include infrastructure upgrades, additional testing, attorneys' fees, and relief for any future actions needed to address PFAS and continue to provide a safe and reliable water supply to our customers.
- Over 900 bases with PFAS with over 500 lawsuits! Whidbey Island, FairChild AFb,

Ensuring a Reliable Water Future
Planning study with Murraysmith

- We are working with Murraysmith, a respected engineering consulting firm, to develop a strategy to maintain supply while minimizing customer exposure to PFAS.
- Options include:

  Filtering more wells

  Increasing capacity at existing wells

  Drilling new wells

The District's drinking water is safe!

PFAS levels across the District are below the EPA's lifetime health advisory levels for PFAS.

So, no matter where you live, you can be confident you are receiving water that meets all current regulations.

Thank you!