

PFAS Exposure Assessment Findings Airway Heights, Spokane County, WA

INFORMATION TO PROTECT OUR COMMUNITIES



Information Session



**National Center
for Environmental Health
Agency for Toxic Substances
and Disease Registry**

Tonight's Presentation



- **Welcome**

Christopher M. Reh, PhD

Associate Director, ATSDR

- **Results and Findings**

CAPT Peter Kowalski, MPH, CIH

Lead, Exposure Investigations Team, ATSDR

- **Recommendations and Next Steps**

CAPT Arthur Wendel, MD

Regional Representative, ATSDR Region 10

- **Questions**

Introductions



Christopher M. Reh, PhD
Associate Director



CAPT Peter Kowalski, MPH, CIH
Lead, Exposure Investigations Team



**CAPT Arthur Wendel, MD,
MPH, FAAFP**
Regional Representative



William E. Jones III, MBA
Health Communications Specialist



Rachel Rogers, PhD
Environmental
Health Scientist



**Michelle Zeager, DO,
MPH, FAAP**
Physician (Public Health)

Welcome



Chris Reh, PhD
Associate Director
Agency for Toxic Substances and Disease Registry



Thank You

Your participation is important and appreciated. It allowed us to:

- ✓ Answer questions and provide useful information about PFAS exposure.
- ✓ Help individuals and communities better understand their PFAS exposure and how to reduce it.
- ✓ Produce information that can be used by public health professionals across the nation to help other communities impacted by PFAS.



Approximately
2,000
participants



Approximately
1,000
households

PFAS Activities



PFAS Exposure Assessments



Assess PFAS exposures in communities near current or former military installations



Compare PFAS levels in blood and urine from each community to levels in general population



Identify and assess environmental factors that affect exposure

PFAS Health Studies



Look at the relationship between PFAS exposure and health outcomes

Results & Findings



CAPT Peter Kowalski, MPH, CIH

Lead, Exposure Investigations Team

Agency for Toxic Substances and Disease Registry

What did we hope to learn?



- ✓ PFAS levels in the blood and urine of participants



- ✓ The range of PFAS levels we might expect to see in untested people in each community



- ✓ How PFAS levels in communities exposed to PFAS through drinking water compare to the general U.S. population



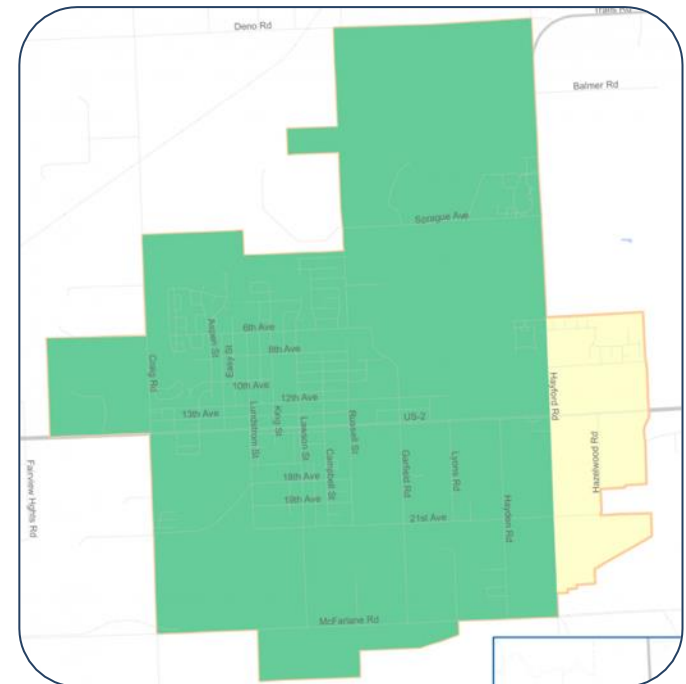
- ✓ What environmental factors might affect PFAS levels in people's bodies

At-A-Glance: Background



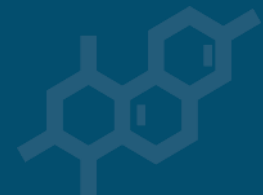
- Launched in 2019 in Airway Heights, near the Fairchild Air Force Base.
- All households on city water in the sampling area received letters, calls, and visits inviting them to participate.
- Participants had to be 3+ years old, no bleeding disorders/not anemic, and lived in the area for one year before June 8, 2017 (when exposure was mitigated).

Sampling area



Why look at exposure now?

PFAS can remain in the body a long time.



At-A-Glance: Participation



- Blood and urine of participants were tested for PFAS.
- Participants completed an exposure history questionnaire.
- Tap water and dust samples were collected from some households.

At-A-Glance: Communicating Progress



- Individual results were shared with participants May 29, 2020.
- Clinical guidance information was presented and mailed to local health care providers.
- Community level results were posted to the ATSDR Spokane County, WA website page.
- ATSDR held an online information session to provide an update and review of available community level results.



**Want to stay
Informed?**

Send an email to
pfas@cdc.gov

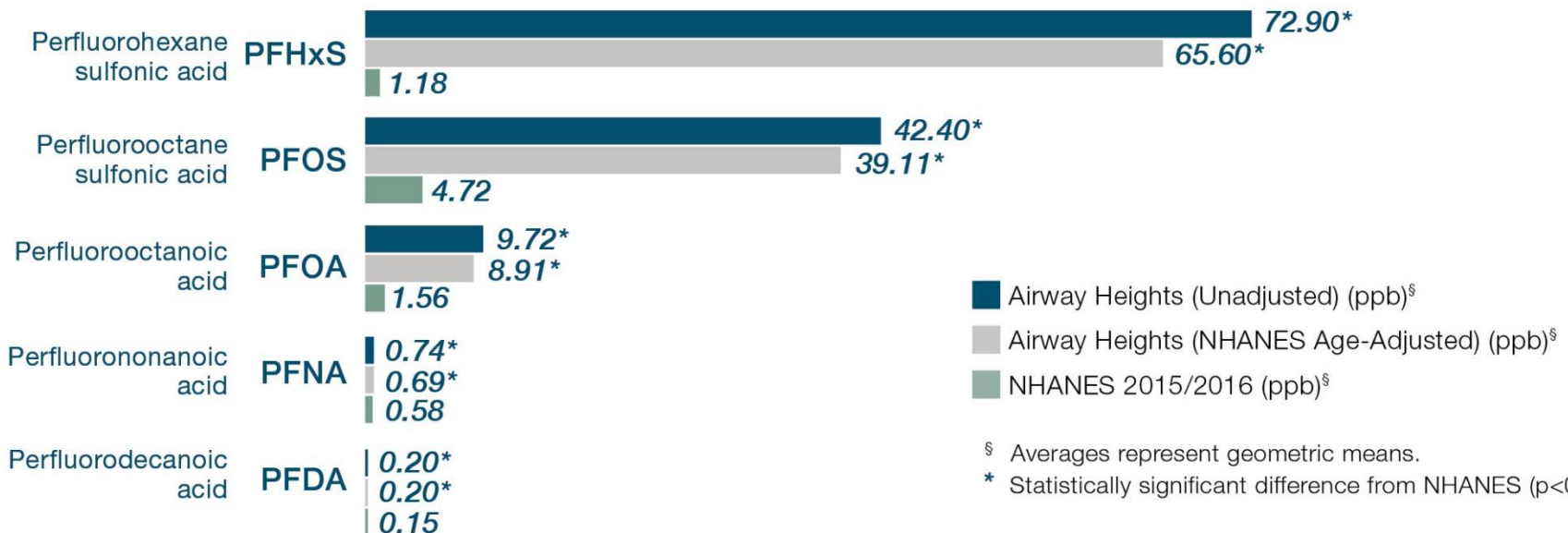
Visit
atsdr.cdc.gov/PFAS

Finding 1: Elevated blood levels of five PFAS



After adjusting for age differences, average blood levels of PFHxS, PFOS, PFOA, PFNA, and PFDA were higher than national averages

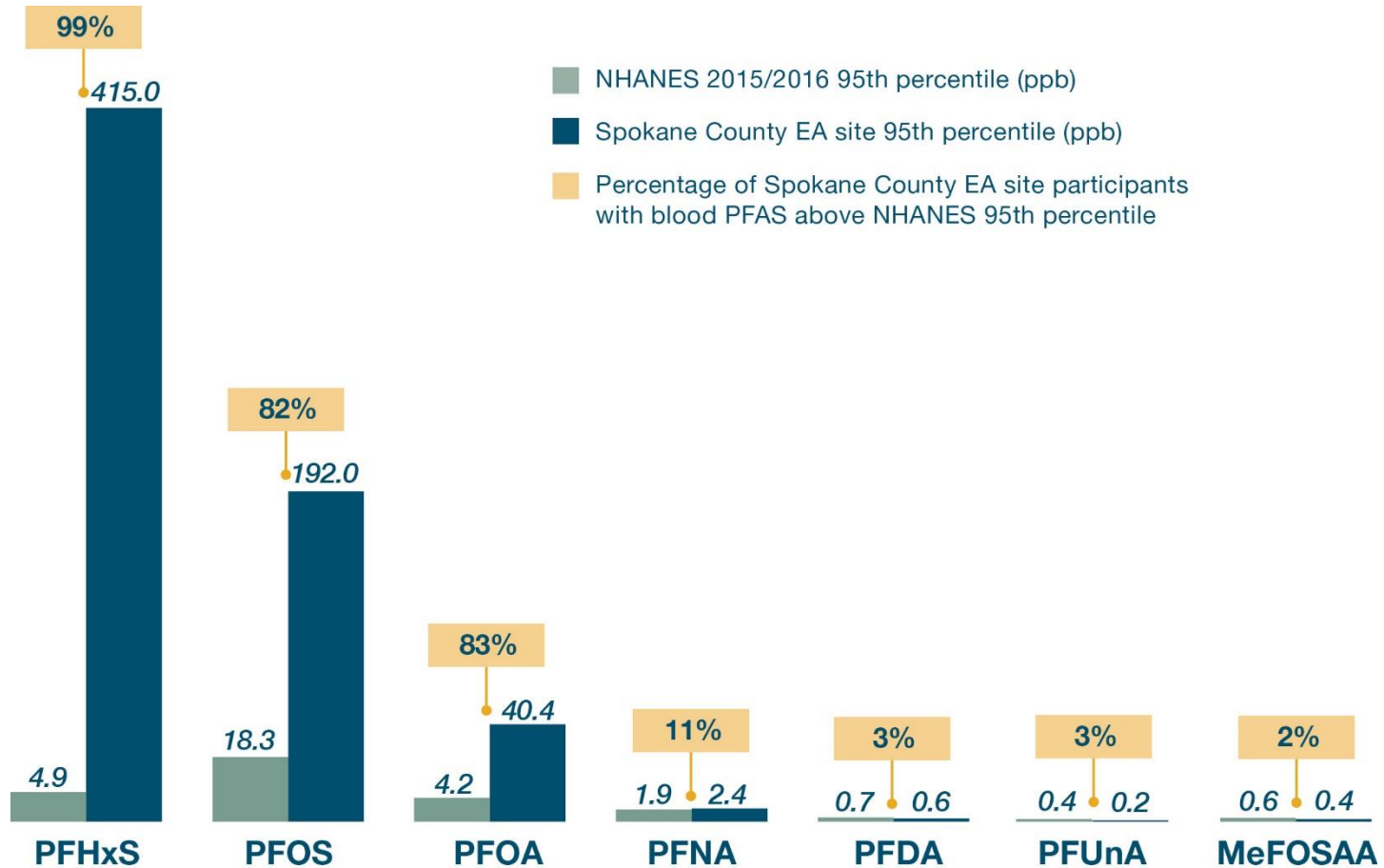
Airway Heights EA site average PFAS blood levels compared to national averages[§]



Finding 1: Elevated blood levels of five PFAS



Airway Heights, WA 95th Percentile Compared to National 95th Percentile



Finding 2: Association with past drinking water contamination

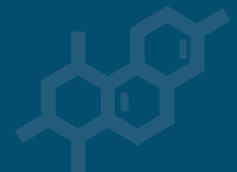


Elevated blood levels of PFHxS, PFOS, and PFOA may be linked with past drinking water contamination.

- Findings suggest common exposure source, such as the Airway Heights drinking water supply.
- PFHxS, PFOS, and PFOA were once detected in the Airway Heights water supply.
- Aqueous film forming foam (AFFF) previously used at the base contained high levels of PFOS and PFHxS.



Historical maximum concentrations detected:
PFOS: 1,200 ppt; **PFHxS:** 1,500 ppt; **PFOA:** 320 ppt



Finding 2: Association with past drinking water contamination



Length of Residency

- Long-time residents had higher PFHxS, PFOS, and PFOA blood levels.



Tap Water Consumption

- PFHxS and PFOS levels were higher among adults who reported mainly drinking tap water at home.

Filtration System

- Adults who used at least one water filter or treatment device had lower PFHxS, PFOS, and PFOA blood levels.



Finding 3: Several factors may impact PFAS blood levels



Males had 77% higher blood levels of PFNA than females.

Blood levels of PFHxS, PFOS, and PFOA were higher in older participants.



Female participants PFAS blood levels decreased with increasing number of child births.

For each child, PFAS levels decreased:

PFOS: 9.3% ↓ **PFHxS: 11.7%** ↓ **PFOA: 13.7%** ↓ **PFNA 8.1%** ↓

Finding 3: Several factors may impact PFAS blood levels



Children



Children who were breastfed **had higher blood levels of PFNA.**

However, based on current science, the benefits of breastfeeding outweigh the risks for infants exposed to PFAS in breast milk.

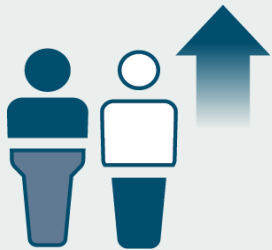


Higher levels of PFHxS and PFOS were found in children who drank formula prepared with tap water.

Many variables could not be examined because of the small number of child participants. ATSDR will gather the data from children across all exposure assessment sites and provide a detailed analysis. A report will be available to all communities.



Finding 3: Several factors may impact PFAS blood levels



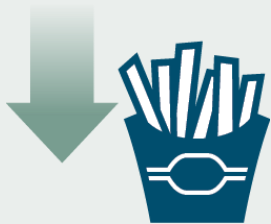
Race and Ethnicity

Participants who identify as non-White or Hispanic had higher PFNA and PFDA blood levels.



LIMITED
DATA

PFNA 37% higher | PFDA 33% higher



Fast food consumption

Participants who ate fast food a few times per month had lower blood PFHxS, PFOS, PFOA, PFNA, and PFDA blood levels.



LIMITED
DATA

These results should be interpreted with caution because of the small number of participants who reported race/ethnicity and fast food consumption

Finding 3: Several factors may impact PFAS blood levels



Other factors impacting PFAS levels:



Participants who reported using stain-resistant products had 26% higher PFDA blood levels than those who didn't.



LIMITED
DATA



Participants who reported donating blood at least once a year had lower blood levels of PFHxS, PFOS, and PFNA.



LIMITED
DATA

These results should be interpreted with caution because of the small number of participants who reported ever using stain-resistant products or donating blood.

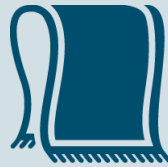
Finding 3: Several factors may impact PFAS blood levels



Factors that DID NOT appear to impact PFAS blood levels in Airway Heights participants include:



Soil exposure



Flooring



Occupation



Kidney disease



Cleaning frequency

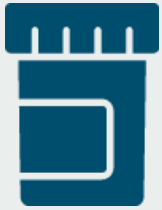


Not enough data to know whether eating locally grown, raised, or caught food impact PFAS levels.



LIMITED DATA

Findings 4, 5, 6: Urine, Tap Water, and Dust Results



- **Urine:** Only two PFAS (PFBA, PFHxS) were detected in urine; they were detected at low concentrations.



- **Tap Water:** All tap water samples collected during the EA in 2019 met the EPA's Health Advisory and Washington state public health guidelines for PFAS in drinking water.



- **Dust:** PFAS contamination in house dust was similar to that reported in other studies.

Limitations



- **Participant demographics for the EA were not exactly the same as the Airway Heights community.**
 - ATSDR addressed some of these concerns by adjusting for differences in age.
- **Sampling and questionnaires could not provide information about all sources of exposure.**
- **Other factors (not identified) could influence the relationships reported.**

Limitations



- **This assessment did not directly assess tap water consumption prior to the reduction of PFAS from the municipal water system.**
- **The dust results presented are exploratory and should be interpreted with caution. They are based on a small amount of data.**



The results cannot be used to determine whether PFAS levels in someone's blood or urine will make them sick now or later in life.

Recommendations



CAPT Arthur Wendel, MD, MPH, FAAFP
Regional Representative
Agency for Toxic Substances and Disease Registry / Region 10

Community Recommendations



This PFAS exposure assessment has demonstrated that past exposures to PFAS in drinking water have impacted the levels of PFAS in people's bodies.



- Continue:**
- Based on the recent PFAS drinking water test results from the City of Airway Heights municipal water system, ATSDR does not recommend an alternate source of drinking water at this time.



To do:



- Become familiar with Consumer Confidence Reports for information on the City of Airway Heights' water quality.

Community Recommendations



To do:



- Private well owners living in the area affected by PFAS should consider having their wells tested for PFAS if testing has not been conducted before.
- Find certified water treatment systems for removing PFOA and PFOS from drinking water.

Continue:



- Continue breastfeeding. The science on the health risks of PFAS exposure is evolving. However, given the scientific understanding at this time, the benefits of breastfeeding outweigh any potential risks of PFAS exposure through breast milk.

Community Recommendations



To do:



- When possible, eliminate or decrease potential exposure to PFAS in consumer products such as stain-resistant products, and food packaging materials.



- ATSDR **does not** recommend EA participants get individually retested for PFAS. Long biological half-lives mean levels are not expected to change significantly near term.

Be aware:



- Blood tests for PFAS are most useful when they are part of a scientific investigation like the exposure assessment.

Community Recommendations



To do:



- Pay attention to advisories about food consumption, such as local fish advisories.
- Follow your child's health care provider recommendations for well child checkups, vaccinations, and screening tests.
- Contact the Pediatric Environmental Health Specialty Units for additional information about environmental exposures and children's health.

City of Airway Heights Recommendations



- ✔ Based on the recent PFAS drinking water test results from the City of Airway Heights municipal water system, ATSDR does not recommend an alternate source of drinking water at this time.
- ✔ Operators of the municipal water system should continue to monitor PFAS to ensure PFAS concentrations remain below the EPA's health advisory and Washington state health guidelines.
- ✔ Continue sharing results of PFAS monitoring with community members.
- ✔ All treatment systems to remove PFAS from the municipal drinking water should be maintained appropriately.

Next Steps



Next steps



- Experts are available to discuss test results and answer questions individually.
- ATSDR will continue to reach out to doctors, nurses, and other health care providers to provide PFAS information.
- ATSDR will provide a final report of findings across all exposure assessment sites.



Next Steps



EXPAND environmental measurements

- PFAS in air, soil and diet



Stay Engaged



- Let us know if you have any questions or concerns now or in the future.



- Stay informed by signing up for our email list (pfas@cdc.gov).

For More Information



Contact:

Captain Arthur Wendel, MD, MPH, FAAFP

Phone: (206) 553-0454

Email: dvq6@cdc.gov

Visit: www.atsdr.cdc.gov/PFAS

Email: pfas@cdc.gov

Call: 1-800-CDC-INFO (232-4636)

Questions?



Thank you for attending

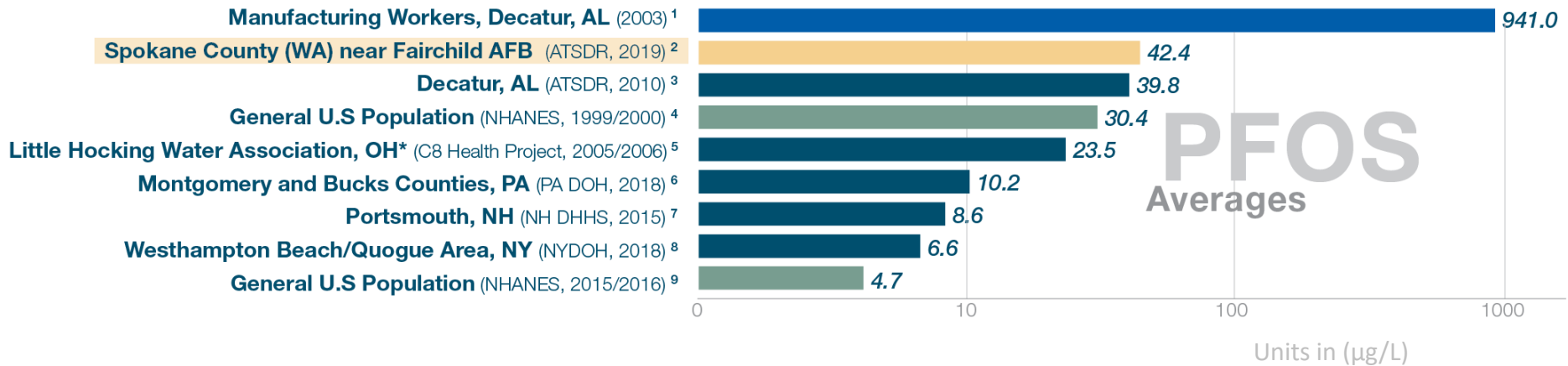


The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention/Agency for Toxic Substances and Disease Registry.

PFOS Compared to Other Studies

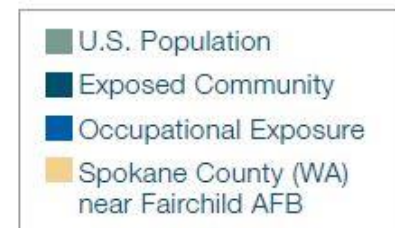


Spokane County, WA



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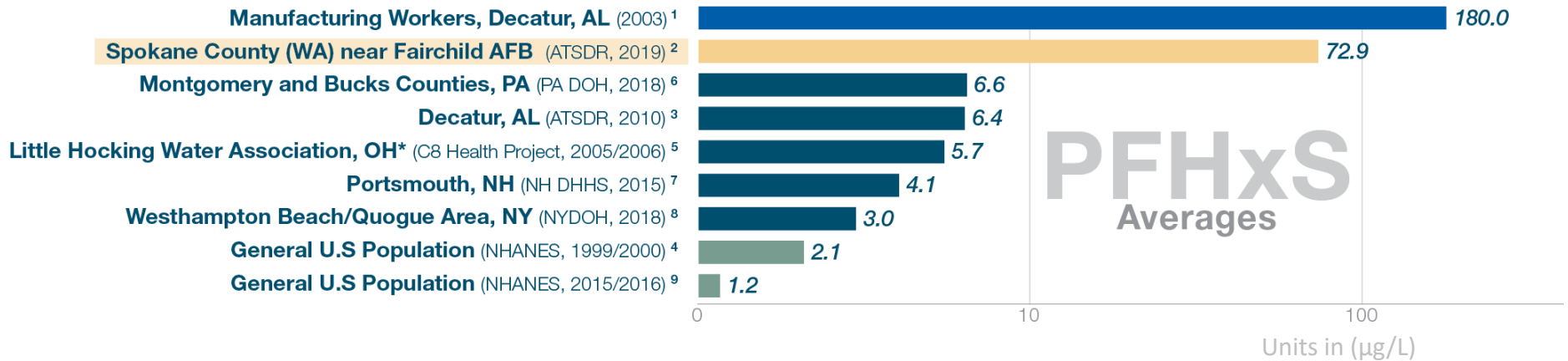
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PFHxS Compared to Other Studies

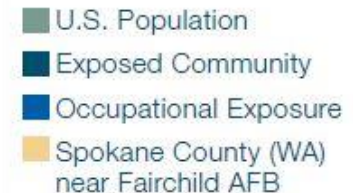


Spokane County, WA



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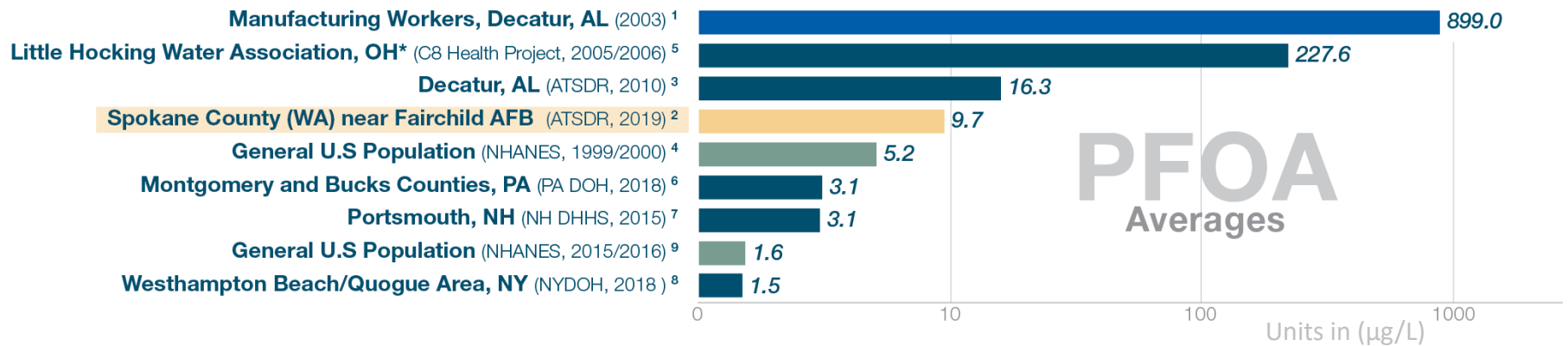
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PFOA Compared to Other Studies



Spokane County, WA



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