My Personal Testing Results

Randy Krause

Fire Chief

Port of Seattle Fire Department

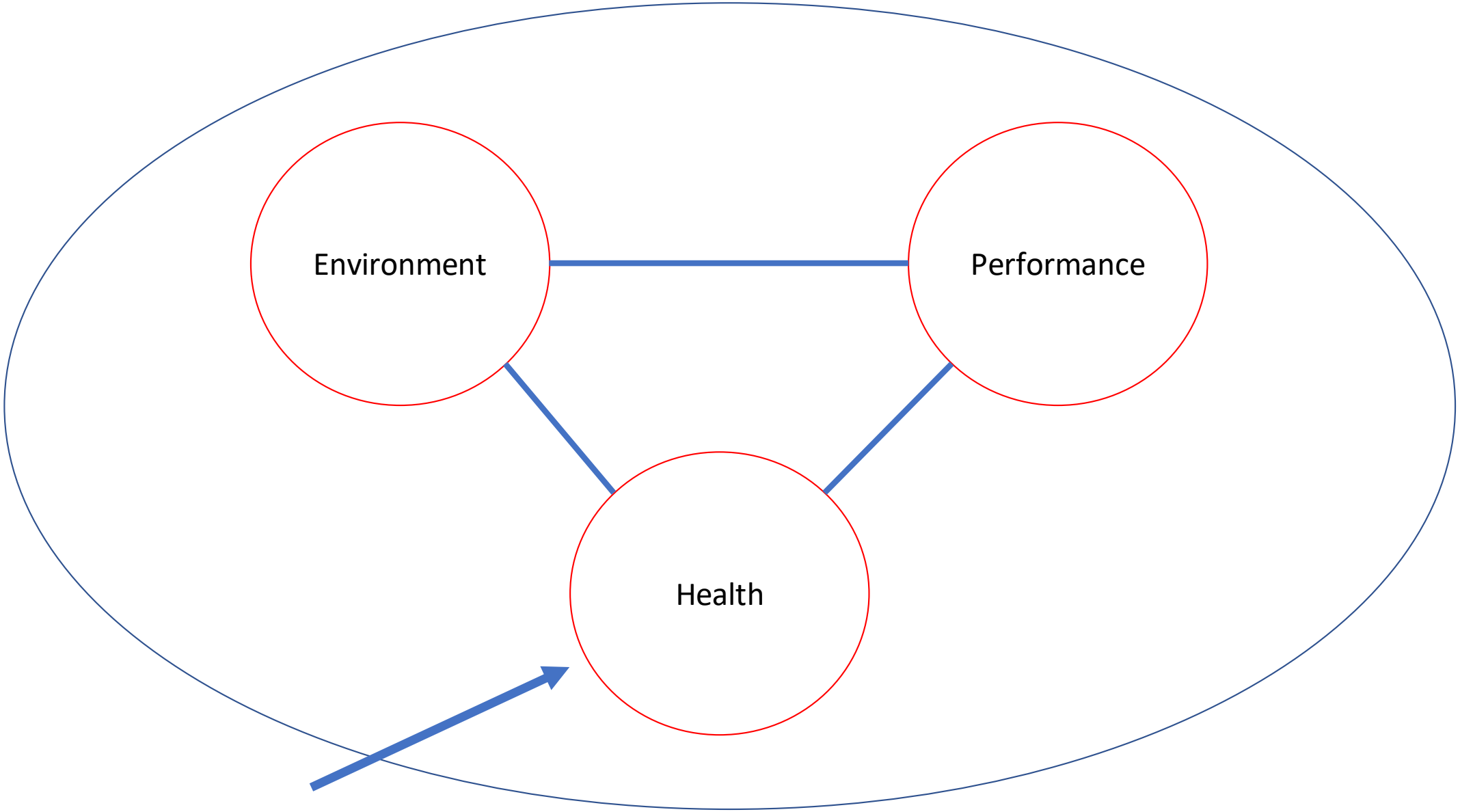
Overview

- Brief history of my experience using AFFF Foam
  - 1985-1989 – DoD
  - 1990-2010 - Private Industry
  - 2010- Present

- Current Experience and Firefighter Cancer Cohort Study
  - My personal experience and test results

Firefighter Cancer Cohort Study

- **A Multi-city National Research Effort**
- **Established in July 2016, the FEMA-funded Fire Fighter Cancer Cohort Study (FFCCS) research project provides a national framework to collect and integrate firefighter epidemiologic surveys, biomarkers and exposure data focused on carcinogenic exposures and health effects. The *long-term goal* is to follow long-term 10,000 firefighters over a 30-year observation period.**

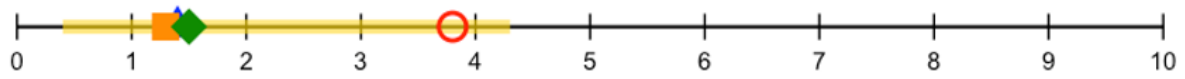

Environment
Performance
Health

Results Summary

Your results are shown below. Please note that for each chemical the scale may be different, and you will see several values.

- The amount measured in your serum in micrograms per liter (ug/L)
- The average amount measured in study participants from your fire department
- The 50th percentile for the US population (the middle amount among those sampled)*
- The 95th percentile for the US population (95% of people have an amount below this value)*
- The range of amounts measured in all study participants from your fire department

Figure 1. n-PFOA (ug/L)



*Below our ability to measure

Figure 2. Sb-PFOA (ug/L)

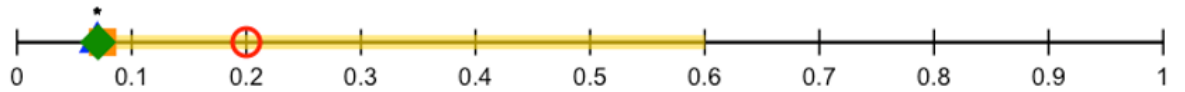


Figure 3. n-PFOS (ug/L)

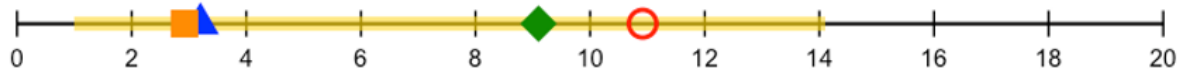


Figure 4. Sm-PFOS (ug/L)

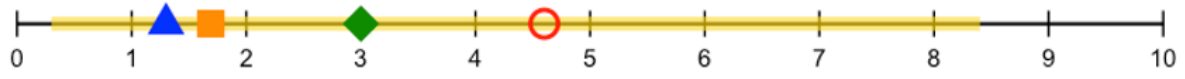


Figure 5. PFHxS (ug/L)

*Below our ability to measure

Figure 6. PFDeA (ug/L)

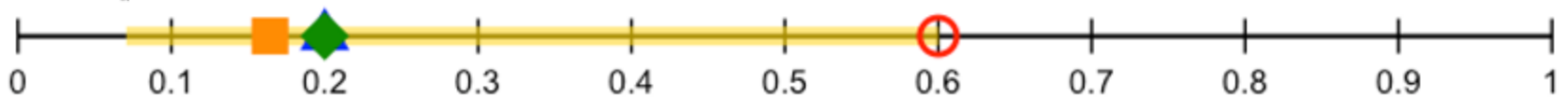
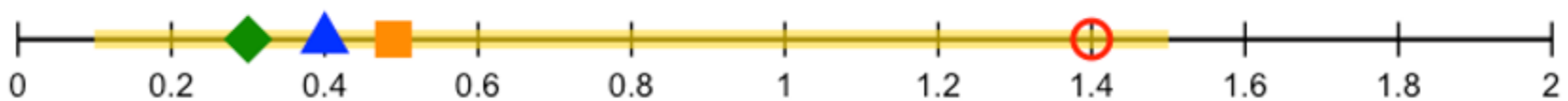
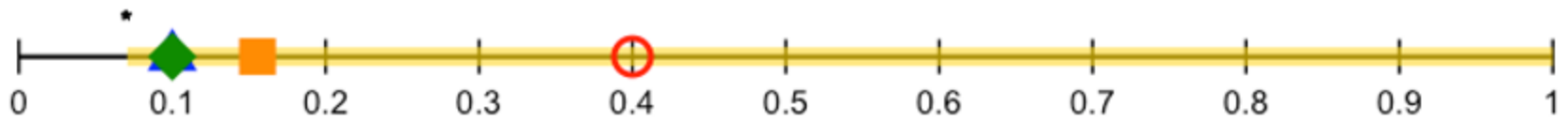


Figure 7. PFNA (ug/L)



*Below our ability to measure

Figure 8. PFUA (ug/L)



*Below our ability to measure

Figure 9. Me-PFOSA-AcOH (ug/L)

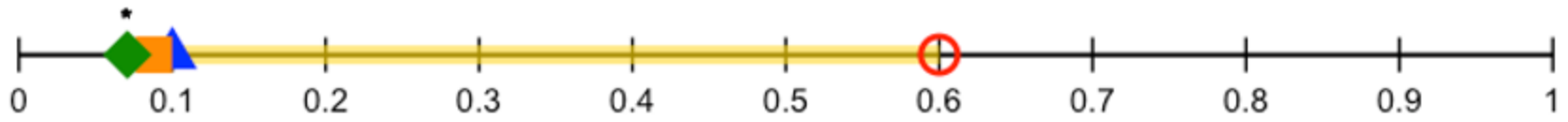


Table 1: Your serum PFAS results (ug/L) compared to US adults

PFAS chemical tested	Your results (ug/L)	2017-2018 NHANES Results for adults (ug/L) 50th Percentile*	2017-2018 NHANES Results for adults (ug/L) 95th Percentile*
PFOA			
n-PFOA	1.50	1.40	3.80
Sb-PFOA	0.07	0.07	0.20
PFOS			
n-PFOS	9.10	3.20	10.92
Sm-PFOS	3.00	1.30	4.60
PFHxS	6.20	1.20	3.80
PFDeA	0.20	0.20	0.60
PFNA	0.30	0.40	1.40
PFUA	0.10	0.10	0.40
Me-PFOSA-AcOH	0.07	0.10	0.60

PFOA: 2.1 to 10.1 years

PFOS: 3.3 to 27 years

PFHxS: 4.7 to 35 years

How long do PFAS remain in the body?

Some PFAS remain in the body for a long time. However, biological half-life varies by chemical species. The half-life of chemical is the amount of time it takes for 50% of the substance to be metabolized and/or eliminated from the body. A few examples are: [2,3,4,5,6]

PFBA: 72 to 81 hours **PFOA:** 2.1 to 10.1 years

PFOS: 3.3 to 27 years **PFHxS:** 4.7 to 35 years

Note: PFAS compounds like Perfluorobutanoic acid (PFBA) with shorter carbon chains may have a shorter half-life

Note: Because some PFAS are persistent in the human body, blood PFOS and PFOA levels can be a surrogate for total PFAS body burden and provide a better indication of the PFAS dose to a target organ than an externally measured dose like PFAS water concentration.