

ARTICLE

Estimating Historical Exposure to Perfluoroalkyl Acids in Security, Fountain, and Widefield Colorado: Use of water-infrastructure blending and toxicokinetic models – Supplemental Information

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Half-life (years)	k (1/years)	1-EXP(-k)	1-EXP(-k)/k	EXP(-kt) (where t=0.5 years)	Average factor for intake term
3.9	0.178	0.162	0.916	0.915	0.9399
9.7	0.071	0.069	0.965	0.965	

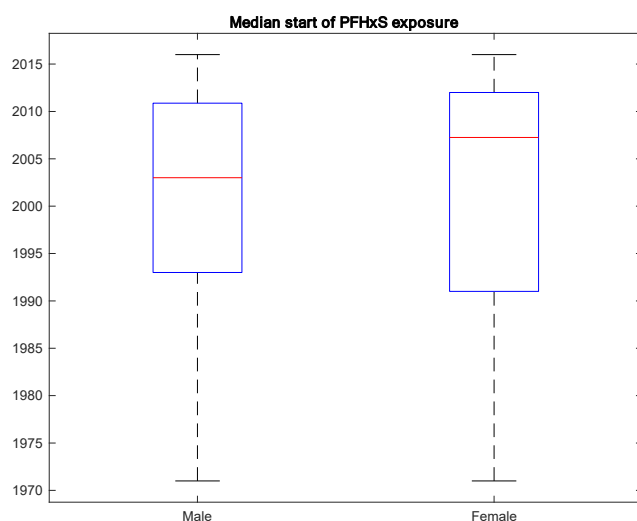
SI Table 1: The exact solution to the differential equation for the one-compartment model with constant intake includes a factor of $(1-\exp(-k_t))/k_t$ on the intake term. To account for the range of half-lives, where menstruating and breastfeeding females have an elimination half-life range for PFHxS of 3.9 to 5.9 years; and males, non-menstruating and pregnant females have an elimination half-life range for PFHxS of 6 to 9.7 years, applied the average factor for the collective range of 3.9 to 9.7 years.

	Mean	95 CI	Standard Deviation (SD)	Log Mean used in monte Carlo	Log SD used in monte Carlo
Birth to <1 year	0.438	0.913	0.289	-1.006	0.40
1 to <2 years	0.438	0.913	0.289	-1.006	0.40
2 to <3 years	0.576	1.092	0.314	-0.682	0.34
3 to <6 years	0.576	1.092	0.314	-0.682	0.34
6 to <11 years	0.576	1.092	0.314	-0.682	0.34
11 to <16 years	0.576	1.092	0.314	-0.682	0.34
16 to <21 years	1.552	1.809	0.156	0.435	0.07
21 to <50 years	1.552	2.862	0.796	0.323	0.32
50+ years	1.49	2.615	0.684	0.303	0.29

SI Table 2: The volume of water consumed was determined using the mean and 95% shrinkage estimates of long-term consumption rates generated by Cuvelier et al. 2021

Hydraulic Conductivity	500	ft/day
Avg. Hydraulic Gradient	0.01107345	ft/ft
Effective Porosity	0.10	(decimal)
Groundwater Velocity	0.62	ft/day
Initial PFHxS concentration	760000	mg/L
Longitudinal Dispersivity	2655	ft
Coefficient of Molecular Diffusion	0.001	ft ² /day

SI Table 3: Parameters used in Ogata-Banks calculator for estimating dispersion in the leading edge of the plume.



SI Figure 1: Median start of PFHxS exposure for women and men within the study population

Age Group	Weight 5 th %	Mean weight	Weight 95 th %
Birth to <1 year	5.2	6.8	8.5
1 to <2 years	8.9	11.4	14
2 to <3 years	10.9	13.8	17.1
3 to <6 years	13.5	18.6	26.2
6 to <11 years	19.7	31.8	52.5
11 to <16 years	34	56.8	88.8
16 to <21 years	48.2	71.6	108
<52 years	Weight is assumed the same as 2018 self-report from age 21 to age in 2018		

SI Table 4: Age weighting brackets used in the pharmacokinetic model