

Assessment of PFAS Contamination from a Local Plastics Plant in Narragansett, Rhode Island Supplemental Data Report

Contributing Authors:

Jitka Becanova, WeiYung Liu, Sierra Bloomer, Alyson McCann, Laurel Schaidler,
Christine Gardiner, Amber Neville, Nathan Vinhateiro, Judith Swift, Rainer Lohmann

STEEP website links:

<https://web.uri.edu/stEEP/pfas/>

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Table 1. Summary results of all data and sample types.					
	Minimum Concentration	Maximum Concentration	Average Concentration	Number of samples	Number of PFAS chemicals
Soil (total)	0.76 ppb	14 ppb	7.1 ppb	7	29
Sediment (total)	0.34 ppb	3.1 ppb	1.4 ppb	3	29
Surface water (total)	4.5 ppt	183 ppt	41 ppt	9	29
Drinking water (total)	13 ppt	19 ppt	16 ppt	2	34
Drinking water (PFOA + PFOS)	5.87 ppt	6.91 ppt	6.39 ppt	2	2
Air (total)*	-	-	-	6	9
ppb = parts per billion; ppt = parts per trillion					
*all air sample concentrations were below the detection limits of the instrument					

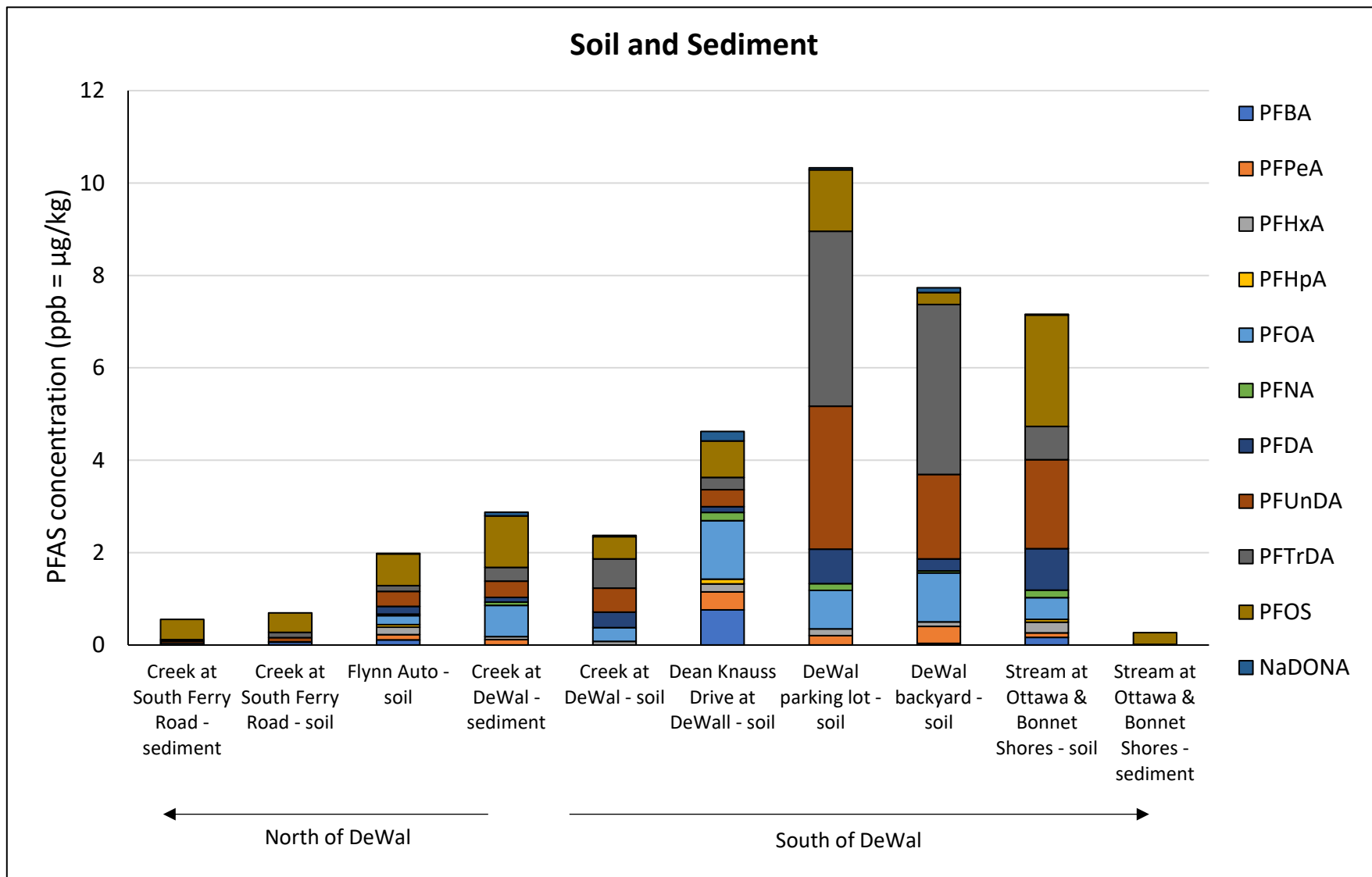


Figure 1. Soil and sediment PFAS concentrations. The 11 most abundant PFAS compounds are plotted here, where each compound's concentration is represented by a color and the bar sums to the total PFAS concentration for each sample.

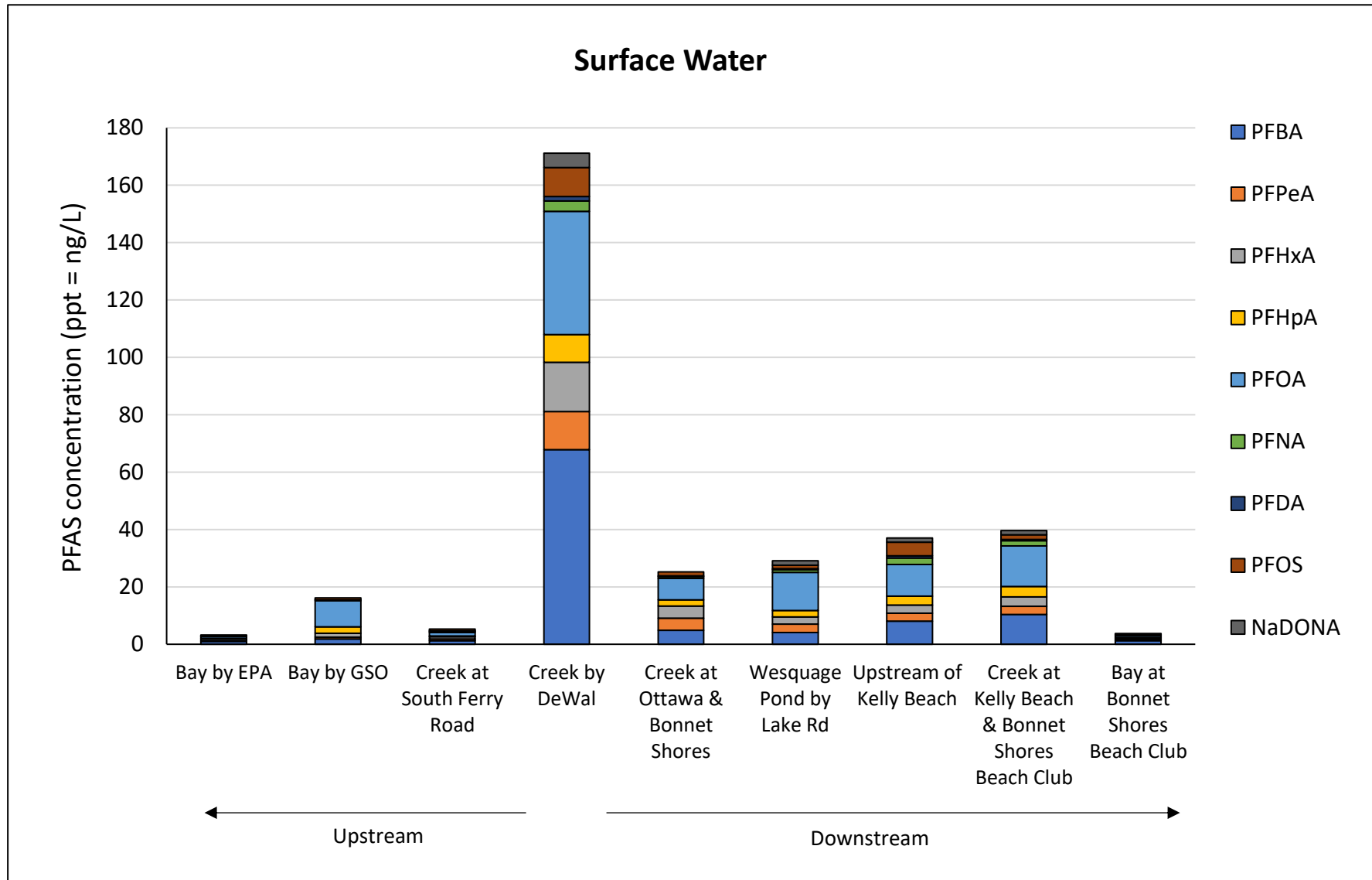


Figure 2. Surface water PFAS concentrations. The 9 most abundant PFAS compounds are plotted here, where each compound's concentration is represented by a color and the bar sums to the total PFAS concentration for each sample.

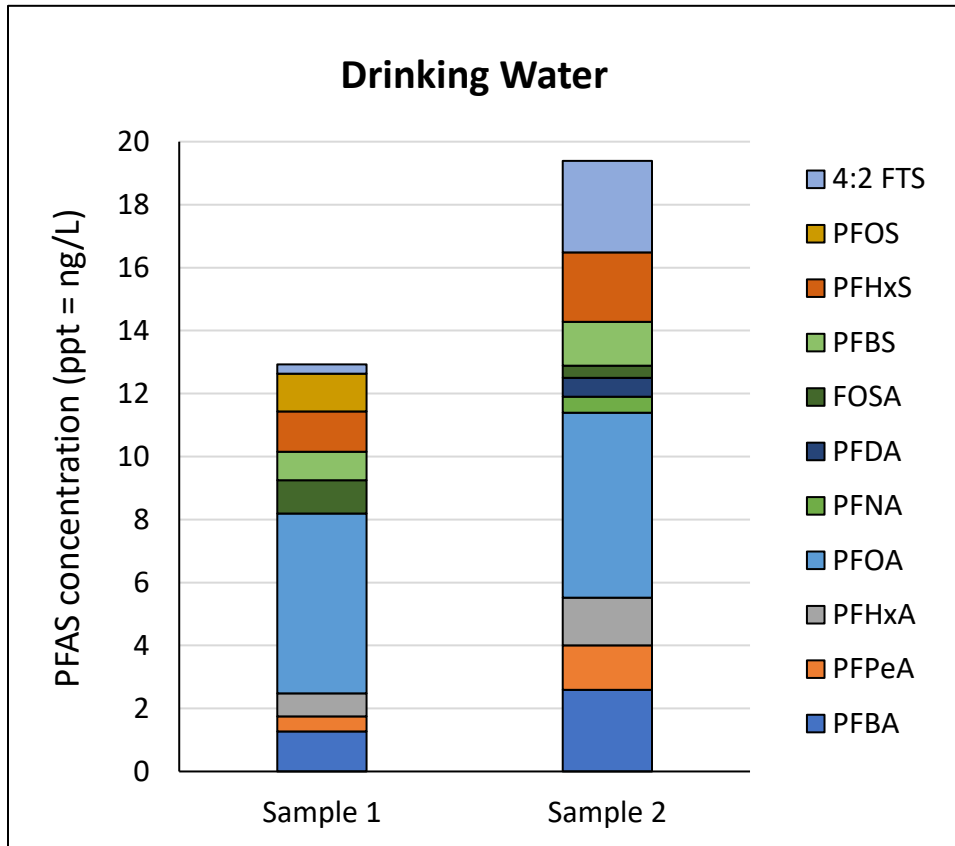


Figure 3. Drinking water PFAS concentrations. The 11 most abundant PFAS compounds are plotted here, where each compound's concentration is represented by a color and the bar sums to the total PFAS concentration for each sample.

Table 2. Soil and Sediment PFAS concentrations.

29 PFAS chemicals measured. ppb = parts per billion. "<" before a number = levels lower than the instrument's detection limit (the number listed).

Distance to DeWal-Rogers plant		1366 ft (416.4 m)	1366 ft (416.4 m)	1328 ft (404.7 m)	256 ft (78.03 m)	256 ft (78.03 m)	255 ft (77.72 m)	460 ft (140.2 m)	272 ft (82.91 m)	2584 ft (787.6 m)	2584 ft (787.6 m)
PFAS	Units	Creek at South Ferry Road - sediment	Creek at South Ferry Road - soil	Flynn Auto - soil	Creek at DeWal - sediment	Creek at DeWal - soil	Dean Knauss Drive at DeWall - soil	DeWal parking lot - soil	DeWal backyard - soil	Stream at Ottawa & Bonnet Shores - soil	Stream at Ottawa & Bonnet Shores - sediment
PFBA	ppb = µg/kg	< 0.005	0.062	0.110	< 0.005	< 0.005	0.760	< 0.005	0.034	0.167	< 0.005
PFPeA	ppb = µg/kg	< 0.002	< 0.002	0.115	0.119	< 0.002	0.390	0.206	0.371	0.097	< 0.002
PFHxA	ppb = µg/kg	0.040	0.007	0.164	0.064	0.081	0.175	0.146	0.096	0.229	< 0.001
PFHpA	ppb = µg/kg	< 0.0005	< 0.0005	0.050	< 0.0005	< 0.0005	0.102	< 0.0005	< 0.0005	0.059	< 0.0005
PFOA	ppb = µg/kg	< 0.0005	< 0.0005	0.199	0.676	0.297	1.266	0.830	1.059	0.471	0.014
PFNA	ppb = µg/kg	< 0.0005	< 0.0005	0.033	0.068	< 0.0005	0.179	0.144	0.045	0.164	< 0.0005
PFDA	ppb = µg/kg	< 0.0005	< 0.0005	0.165	0.102	0.335	0.123	0.750	0.258	0.898	< 0.0005
PFUnDA	ppb = µg/kg	0.044	0.091	0.323	0.351	0.519	0.365	3.095	1.828	1.925	< 0.001
PFDoDA	ppb = µg/kg	< 0.001	< 0.001	0.083	0.094	0.310	0.021	1.450	1.845	0.565	< 0.001
PFTTrDA	ppb = µg/kg	0.033	0.111	0.126	0.298	0.633	0.266	3.787	3.679	0.722	< 0.0015
PFTeDA	ppb = µg/kg	< 0.0015	< 0.0015	0.022	0.050	0.213	0.033	1.104	2.653	0.379	< 0.0015
PFHxDA	ppb = µg/kg	< 0.002	< 0.002	< 0.002	0.020	0.227	< 0.002	1.089	1.354	0.435	< 0.002
PFODA	ppb = µg/kg	< 0.003	< 0.003	< 0.003	< 0.003	0.155	< 0.003	0.215	0.060	0.102	< 0.003
PFBS	ppb = µg/kg	< 0.025	< 0.025	< 0.025	< 0.025	0.065	0.033	< 0.025	< 0.025	< 0.025	< 0.025

Table 2 continued. Soil and Sediment PFAS concentrations.

29 PFAS chemicals measured. ppb = parts per billion. "<" before a number = levels lower than the instrument's detection limit (the number listed).

PFAS	Units	Creek at South Ferry Road - sediment	Creek at South Ferry Road - soil	Flynn Auto - soil	Creek at DeWal - sediment	Creek at DeWal - soil	Dean Knauss Drive at DeWall - soil	DeWal parking lot - soil	DeWal backyard - soil	Stream at Ottawa & Bonnet Shores - soil	Stream at Ottawa & Bonnet Shores - sediment
PFHxS	ppb = µg/kg	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.037	< 0.02
PFHpS	ppb = µg/kg	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
PFOS	ppb = µg/kg	0.437	0.423	0.689	1.118	0.480	0.791	1.327	0.263	2.411	0.254
PFDS	ppb = µg/kg	< 0.025	< 0.025	0.515	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025	< 0.025
6:2 FTS	ppb = µg/kg	0.060	< 0.035	0.055	< 0.035	< 0.035	< 0.035	0.044	< 0.035	0.043	0.040
8:2 FTS	ppb = µg/kg	< 0.0075	< 0.0075	0.014	< 0.0075	< 0.0075	< 0.0075	< 0.0075	< 0.0075	0.021	< 0.0075
FOSA	ppb = µg/kg	0.013	0.026	0.016	0.031	0.061	0.011	0.028	0.026	0.076	0.013
MeFOSA	ppb = µg/kg	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
EtFOSA	ppb = µg/kg	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	< 0.015	0.015	< 0.015
N-MeFOSAA	ppb = µg/kg	< 0.005	0.014	0.030	0.026	0.049	0.014	0.093	0.015	0.136	< 0.005
N-EtFOSAA	ppb = µg/kg	0.019	0.022	0.036	< 0.01	0.024	0.018	0.120	0.017	0.168	0.024
FOUEA	ppb = µg/kg	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
HFPO-DA	ppb = µg/kg	0.030	< 0.015	< 0.015	< 0.015	< 0.015	0.045	< 0.015	< 0.015	< 0.015	< 0.015
NaDONA	ppb = µg/kg	< 0.003	< 0.003	0.010	0.082	0.026	0.208	0.047	0.103	0.014	< 0.003
9Cl-PF3ONS	ppb = µg/kg	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004

Table 3. Surface water PFAS concentrations. 29 PFAS measured. ppt = parts per trillion. "<" before a number = levels lower than the detection limit (the number listed).										
Distance from DeWal-Rogers plant		2727 ft (831.2 m)	2529 ft (770.8 m)	1369 ft (417.3 m)	252 ft (76.81 m)	2573 ft (784.3 m)	3378ft (1029 m)	5333 ft (1626 m)	5808 ft (1770 m)	6177 ft (1883 m)
PFAS	Units	Bay by EPA	Bay by GSO	Creek at South Ferry Road	Creek by DeWal	Creek at Ottawa & Bonnet Shores	Wesquage Pond by Lake Rd	Upstream of Kelly Beach	Creek at Kelly Beach & Bonnet Shores Beach Club	Bay at Bonnet Shores Beach Club
PFBA	ppt = ng/L	1.00	1.89	1.22	67.8	4.84	4.10	8.10	10.38	1.28
PFPeA	ppt = ng/L	0.37	0.61	0.59	13.3	4.24	2.92	2.68	2.84	0.22
PFHxA	ppt = ng/L	0.61	1.38	0.79	17.2	4.26	2.50	2.90	3.26	0.41
PFHpA	ppt = ng/L	< 0.08	2.18	0.29	9.6	2.14	2.24	3.06	3.68	0.44
PFOA	ppt = ng/L	0.68	9.06	1.24	43.0	7.52	13.28	11.10	14.14	0.64
PFNA	ppt = ng/L	0.12	0.29	0.35	3.7	0.59	0.94	2.20	1.83	0.26
PFDA	ppt = ng/L	0.08	0.09	0.20	1.5	0.29	0.36	0.75	0.44	0.09
PFUnDA	ppt = ng/L	< 0.12	< 0.06	< 0.13	0.2	0.18	0.31	0.34	0.17	< 0.06
PFDoDA	ppt = ng/L	< 0.13	< 0.03	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13	< 0.13
PFTrDA	ppt = ng/L	< 0.14	0.23	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14	< 0.14
PFTeDA	ppt = ng/L	< 0.17	< 0.07	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
PFHxDA	ppt = ng/L	< 0.17	< 0.07	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
PFODA	ppt = ng/L	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
PFBS	ppt = ng/L	0.33	0.33	0.49	0.7	2.08	1.15	1.18	1.09	0.26
PFHxS	ppt = ng/L	0.36	0.28	0.31	0.7	4.24	1.47	0.88	0.97	0.32
PFHpS	ppt = ng/L	< 0.07	< 0.07	< 0.07	0.2	0.15	< 0.07	0.14	< 0.07	< 0.07
PFOS	ppt = ng/L	0.35	0.65	0.65	10.1	1.36	1.24	4.79	1.58	0.41
PFDS	ppt = ng/L	< 0.01	< 0.01	0.29	< 0.01	< 0.01	0.54	0.40	< 0.01	< 0.01
6:2 FTS	ppt = ng/L	< 0.11	< 0.11	< 0.11	3.0	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
8:2 FTS	ppt = ng/L	< 0.04	< 0.04	< 0.04	0.9	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04
FOSA	ppt = ng/L	< 0.09	1.64	< 0.09	2.3	0.16	0.22	0.14	1.18	< 0.09
MeFOSA	ppt = ng/L	0.48	< 0.05	< 0.2	< 0.2	0.42	< 0.2	< 0.2	< 0.2	< 0.2
EtFOSA	ppt = ng/L	< 0.4	< 0.04	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	< 0.4
N-MeFOSAA	ppt = ng/L	0.21	2.55	< 0.08	0.3	< 0.08	< 0.08	0.36	0.95	0.17
N-EtFOSAA	ppt = ng/L	< 0.06	< 0.01	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06
FOUEA	ppt = ng/L	< 0.11	< 0.11	< 0.11	1.4	< 0.11	< 0.11	< 0.11	< 0.11	< 0.11
HFPO-DA	ppt = ng/L	< 0.3	< 0.3	< 0.3	2.7	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
NaDONA	ppt = ng/L	< 0.04	< 0.04	< 0.04	5.0	< 0.04	1.52	1.42	1.47	< 0.04
9Cl-PF3ONS	ppt = ng/L	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04

Table 4. Drinking water PFAS concentrations.

34 PFAS chemicals measured. ppt = parts per trillion.

“<” before a number = lower than the instrument’s detection limit (the number listed).

PFAS	Units	Sample 1	Sample 2		PFAS	Units	Sample 1	Sample 2
PFBA	ppt = ng/L	1.27	2.59		PFBS	ppt = ng/L	0.9	1.39
PFPeA	ppt = ng/L	0.48	1.42		PFPeS	ppt = ng/L	< 0.1	< 0.1
PFHxA	ppt = ng/L	0.73	1.51		PFHxS	ppt = ng/L	1.28	2.2
PFHpA	ppt = ng/L	ND	ND		PFHpS	ppt = ng/L	< 0.11	< 0.11
PFOA	ppt = ng/L	5.71	5.87		PFOS	ppt = ng/L	1.2	< 0.15
PFNA	ppt = ng/L	< 0.08	0.51		PFNS	ppt = ng/L	< 0.09	< 0.09
PFDA	ppt = ng/L	< 0.19	0.6		PFDS	ppt = ng/L	< 0.14	< 0.14
PFUnDA	ppt = ng/L	< 0.14	< 0.14		4:2 FTS	ppt = ng/L	0.3	2.91
PFDoDA	ppt = ng/L	< 0.11	< 0.11		6:2 FTS	ppt = ng/L	< 0.11	< 0.11
PFTTrDA	ppt = ng/L	< 0.18	< 0.18		8:2 FTS	ppt = ng/L	< 0.28	< 0.28
PFTeDA	ppt = ng/L	< 0.55	< 0.55		NaDONA	ppt = ng/L	< 0.15	< 0.15
FOSA	ppt = ng/L	1.06	0.39		9Cl-PF3ONS	ppt = ng/L	< 0.11	< 0.11
MeFOSA	ppt = ng/L	< 0.2	< 0.2		11Cl-PF3OUdS	ppt = ng/L	< 0.11	< 0.11
EtFOSA	ppt = ng/L	< 0.4	< 0.4		MeFBSA	ppt = ng/L	< 0.11	< 0.11
N-MeFOSAA	ppt = ng/L	< 0.05	< 0.05		FBSA	ppt = ng/L	< 0.05	< 0.05
N-EtFOSAA	ppt = ng/L	< 0.06	< 0.06		FHxSA	ppt = ng/L	< 0.06	< 0.06
HFPO-DA	ppt = ng/L	< 0.74	< 0.74		PFECHS	ppt = ng/L	< 0.07	< 0.07

Table 5. PFAS compound abbreviation definition			
PFBA	Perfluoro-n-butanoic acid	PFBS	Perfluoro-1-butanefluorobutanesulfonate
PFPeA	Perfluoro-n-pentanoic acid	PFPeS	Perfluoro-1-pentanesulfonate
PFHxA	Perfluoro-n-hexanoic acid	PFHxS	Perfluorohexanesulfonate (linear & branched)
PFHpA	Perfluoro-n-heptanoic acid	PFHpS	Perfluoro-1-heptanesulfonate
PFOA	Perfluoro-n-octanoic acid	PFOS	Perfluorooctanesulfonate (linear & branched)
PFNA	Perfluoro-n-nonanoic acid	PFNS	Sodium Perfluoro-1-nonaanesulfonate
PFDA	Perfluoro-n-decanoic acid	PFDS	Sodium Perfluoro-1-decanesulfonate
PFUnDA	Perfluoro-n-undecanoic acid	4:2 FTS	Sodium 1H, 1H, 2H, 2H-perfluoro-1-hexanesulfonate
PFDoDA	Perfluoro-n-dodecanoic acid	6:2 FTS	Sodium 1H, 1H, 2H, 2H-perfluoro-1-octanesulfonate
PFTrDA	Perfluoro-n-tridecanoic acid	8:2 FTS	Sodium 1H, 1H, 2H, 2H-perfluoro-1-decanesulfonate
PFTeDA	Perfluoro-n-tetradecanoic acid	NaDONA	Sodium dodecafluoro-3H-4, 8-dioxanonanoate
FOSA	Perfluoro-1-octanesulfonamide	9Cl-PF3ONS	Potassium 9-chlorohexadecafluoro-3-oxanonane-1-sulfonate
MeFOSA	N-methyl perfluorooctane sulfonamide	11Cl-PF3OUdS	11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid
EtFOSA	N-ethyl perfluorooctane sulfonamide	MeFBSA	N-methylperfluorobutanesulfonylamide
N-MeFOSAA	N-methylperfluoro-1-octanesulfonamidoacetic acid	FBSA	Perfluorobutane sulfonamide
N-EtFOSAA	N-ethylperfluoro-1-octanesulfonamidoacetic acid	FHxSA	Perfluorohexane sulfonamide
HFPO-DA	hexafluoropropylene oxide dimer acid	PFECBS	Perfluoroethylcyclohexane sulfonate