City of Portsmouth

Department of Public Works

Portsmouth Water System
PFC Sampling
2016 Year End Update
Issued: February 6, 2017

The Air Force's engineering consultant has been performing frequent routine sampling of the water supply wells in the system near the Haven Well for PFCs. Prior to the installation of activated carbon filters for the Smith and Harrison Wells (Pease Wells), the Smith Well was sampled weekly and the Harrison Well was sampled every two weeks while the Portsmouth and Collins wells were sampled monthly. In addition to the water supply wells, the Air Force's consultant samples other monitoring wells in the surrounding area to track any potential migration of PFCs to the aquifer that may be moving toward the supply wells. To date, PFC levels have remained consistent and all detected levels of PFCs in the currently operating supply wells remain below the EPA's current health advisory standard of 70 parts per trillion. The newly installed activated carbon treatment system for the Harrison and Smith wells is also sampled, utilizing the same laboratory as the Air Force's consultant uses to provide consistency. Data provided by the Air Force is updated on the City's website once it has been validated by the laboratory and provided to the City by the Air Force's consultant. The data from the carbon treatment system will be updated monthly.

All of the Portsmouth water sources were sampled for Perfluorinated compounds (PFCs) in May 2014 by the New Hampshire Department of Environmental Services (NHDES). Samples were also taken in two locations of the City's water distribution system (one at the DPW on Peverly Hill Road and another at the meter pit in New Castle). All of the Portsmouth water sources were also sampled as part of the USEPA's third Unregulated Contaminant Monitoring Rule (UCMR 3). Four rounds of UCMR3 sampling were performed between July 2014 and April 2015. Those sample results were below the laboratory's reporting limit for all PFCs.

In June 2016 the NHDES sent out a request to all community and other non-transient water systems to voluntarily collect a water sample for PFOA and PFOS and share the results with NHDES. They also recommended that a lab certified or accredited to complete EPA Method 537 with detection limits of at least 5 nanograms per liter (parts-per-trillion or ppt) be utilized. Following this request Portsmouth water operations staff sampled for PFCs. A second round of sampling was performed in November. The lower reporting limit revealed that the Greenland well results had an average level of 9 ppt of PFOS. It should be noted that the levels were also flagged by the laboratory as "J" values, which means that they were an estimate. The following table summarizes the results for the 2016 PFC sampling:

City of Portsmouth Sampling	Samples Analyzed	Laboratory	PFOA (ppt)	PFOS (ppt)	Combined PFOA - PFOS
Bellamy Reservoir	2	Maxxam	<5	<3	**NA**
Madbury Well 2	1	Maxxam	<5	<3	**NA**
Madbury Well 3	2	Maxxam	<5	<3	**NA**
Madbury Well 4	1	Maxxam	<5	<3	**NA**
Madbury Treatment Plant Finished Water	2	Maxxam	<5	<3	**NA**
Greenland Well	3	Maxxam	<5	9 (J)	**9 (J)**
Air Force Sampling - City Wells					
Portsmouth Well	11	Maxxam	5 (J)	5 (J)	**10 (J)**
Collins Well	12	Maxxam	1 (J)	5 (J)	**6 (J)**
Air Force Sampling - Pease Wells					
Harrison Well	24	Maxxam	7 (J)	24	**31**
Smith Well	42	Maxxam	2 (J)	11 (J)	**13 (J)**

notes:
ppt - Parts per Trillion
< - less than
ND - Non Detect
NA - Not Applicable
(J) - The result is an estimated value.

The NHDES has stated that because of the widespread use of PFCS it is not unusual to find these compounds in groundwater and surface water throughout the nation anywhere samples are analyzed at the part per trillion level. The recent voluntary sampling of public water systems in New Hampshire shows detected PFCs in multiple drinking water systems, including those that previously had no detections utilizing the UCMR3 methods. The NHDES also notes that concentrations of PFCs in groundwater below 10 parts per trillion are normal and can be considered anthropogenic "background" concentration. Additional information on New Hampshire public drinking water sampling for PFCs can be accessed at the NHDES website: http://des.nh.gov/organization/commissioner/pfoa.htm

Health Advisory Levels

In May 2016, the EPA set a Lifetime Health Advisory Level of 70 ppt for PFOS and PFOA. According to EPA information these health advisory levels were calculated to offer a margin of protection for all Americans throughout their life from adverse health effects resulting from exposure to these contaminants in drinking water. In order to assure compliance with the newly adopted health standard, the City of Portsmouth's water division will continue to monitor for PFCs in all water sources twice a year. The next round of sampling will be in May 2017. The Air Force will continue with monthly sampling of the Portsmouth, Collins, Harrison and Smith wells.