



September 8, 2016

TREATMENT PLAN FOR PEASE TRADEPORT WATER SUPPLY

Following the detection of levels above the preliminary health advisory for perfluorinated hydrocarbons (PFCs) in the Haven Well and its subsequent shut down in May 2014, the City of Portsmouth and the United States Air Force established a water treatment plan for the operating Harrison and Smith Wells that will also guide the treatment of the Haven Well, the three wells that supply water to the Pease Tradeport water supply system. Through an agreement with the United States Air Force, the City is has been moving forward with the installation of two 20,000 lb. granular activated carbon vessels (GACs) to filter and remove PFCs from the Harrison and Smith Wells at the existing Grafton Road water facility. This installation will ensure effective technology is in place to properly treat the PFCs and enhance the overall performance of our water system.



This work follows an initial pilot study that was completed in June 2016. Pilot testing results indicated that the GAC filter media will remove PFCs without significant pressure, build up or fouling in the media. General chemistry results also indicated acceptable levels for pH and alkalinity with no anticipated disruption to the existing water distribution system. Frequent sampling, filter monitoring and operational requirements from the Harrison and Smith Wells' demonstration project will be evaluated for the first six months of operation. Information from both the pilot and the demonstration study will then be used by the City's consultant to revise the final design parameters for treatment of the Haven Well.

Startup of the carbon filter system for the Harrison and Smith Wells is anticipated in late September or early October 2016. Final data and design plans for the Haven treatment system

are planned for Spring 2017 with construction of this system anticipated to commence in the Fall of 2017. The Haven Well design will also include contingency planning and treatment system retrofits to treat other contaminants if necessary.

TREATMENT SYSTEM COMPONENTS AND OPERATION

The filtration system for the demonstration will consist of GAC as a filter media. Calgon pressure vessels will be filled with Filtrasorb 400™, which has been used effectively to treat PFCs in drinking water systems in Minnesota, Maryland and other states. Similar to the pilot study, filter vessels for the demonstration project will be placed in series. Groundwater will be pumped through a primary filter (lead), while a second filter (lag) will provide additional filtration capacity to ensure effective removal of PFCs if any pass through the lead filter. Water quality will be monitored before, between and after the filters to evaluate media life. The use of a lead/lag arrangement allows the GAC to be replaced in the lead filter when adsorptive capacities are fully utilized and PFC removal effectiveness has diminished. This dual filtration design provides redundancy and safety for finished water from the plant.



ONGOING WATER QUALITY MONITORING

The Air Force's consultant has been performing frequent routine sampling of the water supply wells in the Pease water system since May 2014. The Smith Well has been sampled weekly for PFCs and the Harrison Well sampled every two weeks. In addition to these water supply wells, the Air Force's consultant samples other monitoring wells in the surrounding area to track the aquifer and monitor for any PFCs moving toward the supply wells.

The EPA recently issued new health advisories of 0.070 µg/L (micrograms per liter) for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS). The Smith and Harrison wells that supply the Pease Tradeport Water System have combined levels PFOA and PFOS that have consistently been below this limit since sampling began in 2014. The most recent samples of tap water in the Pease water system in two locations both had combined levels of PFCs of 0.018 ug/L. Once the City receives the validated results for these wells, plus quarterly sampling in the distribution system, the data is updated and posted on the City's website.

Additional information can be accessed at:

<http://www.cityofportsmouth.com/publicworks/phwn.html>

Or by calling Al Pratt, Water Resources Manager, at 520-0622