City of
Portsmouth
Department of Public Works

October 28, 2019

PEASE TRADEPORT WATER SUPPLY UPDATE

The City's engineering consultant continues to sample the performance of the activated carbon filters based on the amount of water treated. With the newly adopted New Hampshire Maximum Contaminant Levels (MCLs) for PFOA, PFOS, PFHxS and PFNA in place we are now sampling at the recommended lab detection limit which goes down to 2 ppt. Per NHDES, any sample with "estimated numbers below the reporting limit are considered non-detects." Due to the loss of the Haven Well, in order to meet the Pease Tradeport Water System demand, water from the Portsmouth water system is boosted into the Pease system and blended with the treated water from the Harrison and Smith wells. The following table provides a summary of the most recent treatment system testing results. Comprehensive sample data since the filters were changed out in November 2018 is attached. Per NHDES rules, after October 1, 2019, we will begin to report the data as a 4-quarter rolling average.

PFAS Sampling for September 20, 2019

Sample Point	PFHxS	PFNA	PFOS	PFOA
NH MCLs (ppt)	18	11	15	12
Grafton Road Treatment	ND	ND	ND	ND

Notes:
"NH MCLs" are the New Hampshire Maximum Contaminant Levels (effective October 1, 2019)
"ND" is considered Non Detect. Per NHDES, "estimated numbers below the reporting limit are considered Non Detects."

ONGOING WATER QUALITY MONITORING AND UPDATES

The Air Force's consultant continues to perform routine sampling of the water supply wells in the Pease water system. 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 PFAS moving toward the supply wells. Currently, with the demonstration filters on line, the supply wells are sampled monthly and eleven monitoring wells are sampled quarterly. Sampling data is posted on the City's website once it has been validated by the Air Force's engineering consultant.

Information is also posted on the City's website for the City of Portsmouth's PFAS sampling program.

All samples collected are analyzed by Maxxam laboratories, the same laboratory that has been performing the Pease well PFAS analysis since 2014. Data for the Pease Well sampling is uploaded to the City's website when it is validated by the Air Force's consultant and sent to the City. A summary of the data for the Pease Well Carbon Treatment Demonstration Project is provided on the City's website.

FINAL TREATMENT SYSTEM CONSTRUCTION

Rendering of Proposed Drinking Water Treatment Facility Upgrade – Grafton Road

Construction of the final treatment system, which includes both resin and activated carbon filtration systems, began in April 2019. Demolition of older structures began at that time and continues. Recent work includes construction of the underground treated water storage tanks and associated site work around the building.

Installation of New Carbon Filters

New Building Under Construction

PUBLIC OUTREACH AND OTHER INFORMATION

City Staff and Consultants Give a Tour of the Activated Carbon Demonstration Filter System to New Hampshire Water Works Association Professionals in August 2019

The City continues to provide updated PFAS information on the City's website and also shares information at various conferences. Other committees, such as the Citizen's Advisory Panel, continue to work on the PFAS issue regarding exposure and health assessments. The following links provide more detail:

- Presentation to Annual Association for Environmental Health and Sciences Foundation conference at the University of Massachusetts given by Brian Goetz and Al Pratt:
  - http://files.cityofportsmouth.com/files/dpw/PeasePFASExperience10.22.2019.pdf
- September 18, 2019 presentation to Pease RAB:
  - http://files.cityofportsmouth.com/files/dpw/PeaseRABmeeting09.2019.pdf
- Pease Health Study is soliciting participants that drank Pease International Tradeport water prior to the closing of the Haven Well in May 2014. Additional Information:
  - https://www.atsdr.cdc.gov/pfas/Pease-Study.html

NEW HAMPSHIRE PFAS REGULATIONS

The state of New Hampshire's legislature's administrative rules committee approved drinking water standards for four Perfluorinated compounds (PFAS) compounds on July 18, 2019. These standards set maximum contaminant levels (MCLs) for public drinking water systems at the following levels:

- Perfluorooctanoic acid (PFOA): 12 ppt
- Perfluoroctane sulfonic acid (PFOS): 15 ppt
- Perfluorononanoic acid (PFNA): 11 ppt
- Perfluorohexane sulfonic acid (PFHxS): 18 ppt
    - ppt = Parts per Trillion

The new standards took effect this October. All public water systems now have to begin sampling for PFAS on a quarterly basis. If the average PFAS level for first year of testing exceeds the new standards in any drinking water source they will have to explore options for treatment.

Additional information can be accessed at:

www.cityofportsmouth.com/publicworks/water/pease-tradeport-water-system

or by calling Al Pratt, Water Resources Manager, at: 603-520-0622 or Brian Goetz, Deputy Director of Public Works at: 603-766-1420

Table 2
Summary of PFAS Analytical Results
Demonstration Project
December 2018 to July 2019

Sample Location	Collection Date	Filter 1 Volume (MG)	Filter 1 Bed Volumes	Filter 2 Volume (MG)	Filter 2 Bed Volumes	6:2 Fluorotelomer sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonate (8:2 FTS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl Perfluorooctane Sulfonamide (MEFOSA)	N-Methyl Perfluorooctane Sulfonamidoethanol (MEFOSE)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecane sulfonate (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptane sulfonate (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (PFOSA)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	PFOS+PFOA
NHDES MCL:						-	-	-	-	-	-	-	-	-	-	-	-	-	0.018	-	0.012	0.011	-	0.015	-	-	-	-	-
Method Detection Limit (MDL)						0.0065	0.0055	0.0053	0.0049	0.0040	0.0061	0.0019	0.0066	0.0043	0.0066	0.0057	0.0036	0.0047	0.0040	0.0046	0.0053	0.0046	0.0058	0.0033	0.0036	0.0052	0.0032	0.0037	
Reported Detection Limit (RDL)						0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	0.020	
GAC changed out in both vessels (11/7/2018)																													
Combined Raw	06-Dec-18	2.2	423	0.4	77	ND	ND	ND	ND	ND	ND	ND	0.0092 J	ND	ND	ND	ND	0.0140 J	0.0960	0.0360	0.0290	ND	ND	0.0470	0.0330	ND	ND	ND	0.0760
Filter 1- 25%	06-Dec-18	2.2	423	0.4	77	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Combined Raw	10-Jan-19	6.9	1,320	5.1	973	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0280	0.0100 J	0.0084 J	ND	ND	0.0160 J	0.0100 J	ND	ND	ND	0.0244 J
Filter 1- 25%	10-Jan-19	6.9	1,320	5.1	973	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Filter 2-100%	10-Jan-19	6.9	1,320	5.1	973	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Combined Raw	07-Feb-19	18.0	3,430	16.2	3,083	ND	ND	ND	ND	ND	ND	ND	0.0100 J	ND	ND	ND	ND	0.0130 J	0.0600	0.0220	0.0180 J	ND	ND	0.0270	0.0210	ND	ND	ND	0.0450 J
Filter 1- 25%	07-Feb-19	18.0	3,430	16.2	3,083	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Filter 2-100%	07-Feb-19	18.0	3,430	16.2	3,083	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Combined Raw	07-Mar-19	29.0	5,590	27.2	5,243	ND	ND	ND	ND	ND	ND	0.0084 J	0.0130 J	ND	ND	ND	ND	0.0160 J	0.0920	0.0320	0.0280	ND	ND	0.0420	0.0310	ND	ND	ND	0.0700
Filter 1- 25%	07-Mar-19	29.0	5,590	27.2	5,243	ND	ND	ND	ND	ND	ND	ND	0.0089 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Filter 2-100%	07-Mar-19	29.0	5,590	27.2	5,243	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Combined Raw	05-Apr-19	40.9	7,816	39.1	7,469	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0091 J	0.0660	0.0210	0.0180 J	ND	ND	0.0250	0.0210	ND	ND	ND	0.0430 J
Filter 1- 25%	05-Apr-19	40.9	7,816	39.1	7,469	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0059 J	ND	ND	ND	ND
Filter 1- 50%	05-Apr-19	40.9	7,816	39.1	7,469	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Filter 2-100%	05-Apr-19	40.9	7,816	39.1	7,469	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Combined Raw	09-May-19	54.7	10,434	52.9	10,087	ND	ND	ND	ND	ND	ND	ND	0.0073 J	ND	ND	ND	ND	0.0095 J	0.0730	0.0240	0.0200	ND	ND	0.0280	0.0210	ND	ND	ND	0.0480 J
Filter 1- 25%	09-May-19	54.7	10,434	52.9	10,087	ND	ND	ND	ND	ND	ND	ND	0.0097 J	ND	ND	ND	ND	ND	ND	0.0094 J	ND	ND	ND	ND	0.0170 J	ND	ND	ND	ND
Filter 1- 50%	09-May-19	54.7	10,434	52.9	10,087	ND	ND	ND	ND	ND	ND	ND	0.0083 J	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0048 J	ND	ND	ND	ND
Filter 2-100%	09-May-19	54.7	10,434	52.9	10,087	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Method Detection Limit (MDL)						0.00043	0.00047	-	-	-	-	0.00037	0.00045	0.00036	0.00018	0.00025	0.00063	0.00037	0.00033	0.00026	0.00023	0.00048	0.00031	0.00043	0.00048	0.00016	0.00030	0.00038	-
Reported Detection Limit (RDL)						0.004	0.004	-	-	-	-	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.004	0.002	0.002	0.002	0.002	0.002	-
Combined Raw	07-Jun-19	66.4	12,667	64.6	12,320	0.0007 J	ND	NA	NA	NA	NA	0.0043	0.0084	ND	ND	ND	0.0022	0.0100	0.0820	0.0240	0.0210	0.0009 J	ND	0.0330	0.0220	ND	ND	ND	0.0540
Filter 1- 25%	07-Jun-19	66.4	12,667	64.6	12,320	0.0006 J	ND	NA	NA	NA	NA	0.0017 J	0.0094	ND	ND	ND	ND	0.0040	0.0110	0.0140	0.0040	ND	ND	0.0021	0.0200	ND	ND	ND	0.0061
Filter 1- 50%	07-Jun-19	66.4	12,667	64.6	12,320	0.0005 J	ND	NA	NA	NA	NA	ND	0.0094	ND	ND	ND	ND	0.0008 J	0.0009 J	0.0047	0.0003 J	ND	ND	ND	0.0140	ND	ND	ND	ND
Filter 1- 75%	07-Jun-19	66.4	12,667	64.6	12,320	0.0005 J	ND	NA	NA	NA	NA	ND	0.0097	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0023	ND	ND	ND	ND
Filter 2-100%	07-Jun-19	66.4	12,667	64.6	12,320	0.0005 J	ND	NA	NA	NA	NA	ND	0.0022	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Combined Raw	08-Jul-19	78.9	15,054	77.1	14,707	0.0006 J	ND	NA	NA	NA	NA	0.0042	0.0079	ND	ND	ND	0.0018 J	0.0093	0.0740	0.0230	0.0220	0.0010 J	ND	0.0310	0.0220	ND	ND	ND	0.0530
Filter 1- 25%	08-Jul-19	78.9	15,054	77.1	14,707	ND	ND	NA	NA	NA	NA	0.0024	0.0074	ND	ND	ND	ND	0.0052	0.0240	0.0160	0.0087	ND	ND	0.0070	0.0190	ND	ND	ND	0.0157
Filter 1- 50%	08-Jul-19	78.9	15,054	77.1	14,707	ND	ND	NA	NA	NA	NA	0.0011 J	0.0082	ND	ND	ND	ND	0.0022	0.0043	0.0110	0.0024	ND	ND	0.0006 J	0.0170	ND	ND	ND	0.0030 J
Filter 1- 75%	08-Jul-19	78.9	15,054	77.1	14,707	ND	ND	NA	NA	NA	NA	ND	0.0093	ND	ND	ND	ND	ND	ND	0.0015 J	ND	ND	ND	ND	0.0110	ND	ND	ND	ND
Filter 1- 100%	08-Jul-19	78.9	15,054	77.1	14,707	ND	ND	NA	NA	NA	NA	ND	0.0087	ND	ND	ND	ND	ND	ND	0.0014 J	ND	ND	ND	ND	0.0084	ND	ND	ND	ND
Filter 2- 100%	08-Jul-19	78.9	15,054	77.1	14,707	ND	ND	NA	NA	NA	NA	ND	0.0057	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Combined Raw	15-Aug-19	94.2	17,980	92.4	17,633	ND	ND	NA	NA	NA	NA	0.0045	0.0079	ND	ND	ND	0.0021	0.0110	0.0860	0.0250	0.0230	0.0009 J	ND	0.0350	0.0240	ND	ND	ND	0.0580
Filter 1- 25%	15-Aug-19	94.2	17,980	92.4	17,633	ND	ND	NA	NA	NA	NA	0.0031	0.0076	ND	ND	ND	0.0007 J	0.0064	0.0320	0.0190	0.0110	ND	ND	0.0087	0.0200	ND	ND	ND	0.0197
Filter 1- 50%	15-Aug-19	94.2	17,980	92.4	17,633	ND	ND	NA	NA	NA	NA	0.0022	0.0080	ND	ND	ND	ND	0.0039	0.0120	0.0160	0.0050	ND	ND	0.0021	0.0190	ND	ND	ND	0.0071
Filter 1- 75%	15-Aug-19	94.2	17,980	92.4	17,633	ND	ND	NA	NA	NA	NA	0.0007 J	0.0088	ND	ND	ND	ND	0.0008 J	ND	0.0078	0.0005 J	ND	ND	ND	0.0180	ND	ND	ND	ND
Filter 1- 100%	15-Aug-19	94.2	17,980	92.4	17,633	ND	ND	NA	NA	NA	NA	0.0007 J	0.0099	ND	ND	ND	ND	0.0010 J	ND	0.0068	0.0008 J	ND	ND	ND	0.0170	ND	ND	ND	ND
Filter 2- 25%	15-Aug-19	94.2	17,980	92.4	17,633	ND	ND	NA	NA	NA	NA	ND	0.0096	ND	ND	ND	ND	ND	ND	0.0011 J	ND	ND	ND	ND	0.0110	ND	ND	ND	ND
Filter 2- 100%	15-Aug-19	94.2	17,980	92.4	17,633	ND	ND	NA	NA	NA	NA	ND	0.0086	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0035	ND	ND	ND	ND
Combined Raw	20-Sep-19	108.7	20,752	106.9	20,405	ND	ND	NA	NA	NA	NA	0.0036	0.0082	ND	ND	ND	0.0016 J	0.0100	0.0830	0.0250	0.0240	ND	ND	0.0430	0.0220	ND	ND	ND	0.0670
Filter 1- 25%	20-Sep-19	108.7	20,752	106.9	20,405	ND	ND	NA	NA	NA	NA	0.0024	0.0073	ND	ND	ND	ND	0.0066	0.0380	0.0190	0.0110	ND	ND	0.0150	0.0190	ND	ND	ND	0.0260
Filter 1- 50%	20-Sep-19	108.7	20,752	106.9	20,405	ND	ND	NA	NA	NA	NA	0.0018 J	0.0078	ND	ND	ND	ND	0.0050	0.0190	0.0170	0.0063	ND	ND	0.0042	0.0190	ND	ND	ND	0.0105
Filter 1- 75%	20-Sep-19	108.7	20,752	106.9	20,405	ND	ND	NA	NA	NA	NA	0.0006 J	0.0092	ND	ND	ND	ND	0.0014 J	0.0020	0.0120	0.0007 J	ND	ND	ND	0.0210	ND	ND	ND	ND
Filter 1- 100%	20-Sep-19	108.7	20,752	106.9	20,405	ND	ND	NA	NA	NA	NA	ND	0.0080	ND	ND	ND	ND	0.0009 J	0.0017 J	0.0088	0.0006 J	ND	ND	ND	0.0180	ND	ND	ND	ND
Filter 2- 25%	20-Sep-19	108.7	20,752	106.9	20,405	ND	ND	NA	NA	NA	NA	ND	0.0088	ND	ND	ND	ND	ND	ND	0.0036	ND	ND	ND	ND	0.0160	ND	ND	ND	ND
Filter 2- 100%	20-Sep-19	108.7	20,752	106.9	20,405	ND	ND	NA	NA	NA	NA	ND	0.0095	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0079	ND	ND	ND	ND

Table 2
Summary of PFAS Analytical Results
Demonstration Project
December 2018 to July 2019

Sample Location	Collection Date	Filter 1 Volume (MG)	Filter 1 Bed Volumes	Filter 2 Volume (MG)	Filter 2 Bed Volumes	6:2 Fluorotelomer sulfonate (6:2 FTS)	8:2 Fluorotelomer sulfonate (8:2 FTS)	N-Ethyl perfluorooctane sulfonamide (EtFOSA)	N-Ethyl perfluorooctane sulfonamidoethanol (EtFOSE)	N-Methyl Perfluorooctane Sulfonamide (MEFOSA)	N-Methyl Perfluorooctane Sulfonamidoethanol (MEFOSE)	Perfluorobutanesulfonic acid (PFBS)	Perfluorobutanoic acid (PFBA)	Perfluorodecane sulfonate (PFDS)	Perfluorodecanoic acid (PFDA)	Perfluorododecanoic acid (PFDoA)	Perfluoroheptane sulfonate (PFHpS)	Perfluoroheptanoic acid (PFHpA)	Perfluorohexanesulfonic acid (PFHxS)	Perfluorohexanoic acid (PFHxA)	Perfluorooctanoic acid (PFOA)	Perfluorononanoic acid (PFNA)	Perfluorooctane sulfonamide (PFOSA)	Perfluorooctanesulfonic acid (PFOS)	Perfluoropentanoic acid (PFPeA)	Perfluorotetradecanoic acid (PFTeDA)	Perfluorotridecanoic acid (PFTrDA)	Perfluoroundecanoic acid (PFUnA)	PFOS+PFOA
					NHDES MCL:	-	-	-	-	-	-	-	-	-	-	-	-	-	0.018	-	0.012	0.011	-	0.015	-	-	-	-	-
Rolling 12-month Average (since Nov. GAC changeout) Reported in ppt (ng/L)					**Filter 2-100%**	ND	ND	ND	ND	ND	ND	ND	2.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	ND	ND	ND	ND

Grey text indicates the parameter was not analyzed or not detected.
All concentrations in µg/L - micrograms per liter (ppb)
J - The result is an estimated value.
B - Detected in Blank.

USEPA - Environmental Protection Agency
NA - Not Analysed or Not Applicable
ND - Not detected
— - No Health Advisory available

- Denotes 'B' value, detected in blank
- Denotes raw water influent sample
- Denotes short chain compound