



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

Charles D. Baker
Governor

Kathleen A. Theoharides
Secretary

Karyn E. Polito
Lieutenant Governor

Martin Suuberg
Commissioner

September 24, 2019

Devens MassDevelopment
Attn: Jim Moore, Utilities Office
33 Andrews Parkway
Devens, MA 01434

Re PWS Town: Ayer
PWS Name: Devens MassDevelopment
PWS ID #: 2019001; R.O.#: 291149
Program: System Modification WS21
Action: **Activation Approval Train B**
MassDEP Trans. #: X283482

Dear Mr. Moore:

The Central Regional Office of the Massachusetts Department of Environmental Protection (MassDEP) Drinking Water Program (DWP) approved the WS21 permit application on June 13, 2019 for Devens MassDevelopment (Devens) to install a full scale pilot study of Granular Activated Carbon (GAC) filtration media for the removal of per and polyfluoroalkyl substances (PFAS) from the raw water at the Shabokin Well Water Treatment Plant (WTP) in Devens, Massachusetts. On August 20, 2019, MassDEP issued an activation approval for Devens to operate the first of two Model 12 Modular Carbon Adsorption systems operated in series for the PFAS removal. The carbon filters are located ahead of the Shabokin WTP where water is further treated for pH adjustment, corrosion control and disinfection. Each train (A and B) of two 12-foot diameter pressure filtration vessels is designed to treat up to 450 gpm of flow using Calgon Carbon Filtrasorb 400 GAC media.

MassDEP conducted activation inspections on July 10, 2019 and August 12, 2019. Samples collected on August 5, 2019, from Train A influent and effluent and analyzed for PFAS were 25.4 ppt and ND respectively. A bacteria sample of the water leaving each carbon filter collected on July 18, 2019, and August 14, 2019 confirmed the water was absent of Total Coliform. MassDEP granted approval via email to activate Train A on August 19, 2019 and a written approval for Train A on August 20, 2019. Train A was turned on August 19, 2019.

Train B was flushed and backwashed in early to mid August 2019 and bacteria and PFAS samples were collected on August 14, 2019. Bacteria samples came back absent of total coliform from the raw, mid point and treated water. PFAS samples collected on August 14, 2019 came back with finished treated water PFAS results for the 5 PFAS contaminants (perfluorooctanoic acid – PFOA, perfluorooctanesulfonic acid – PFOS, perfluoroheptanoic acid - PFHpA, perfluorohexanesulfonic

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

acid - PFHxS, perfluorononanoic acid – PFNA) all at ND. MassDEP granted Devens approval to turn on Train B via email on September 3, 2019. Devens turned on Train B on September 3, 2019. Confirmatory PFAS samples collected on September 3, 2019 from the raw water, Train B midpoint, and Train B effluent and analyzed for PFAS were 33 ppt, ND, and ND respectively.

Review and Approval

Based on the engineer’s certification dated September 9, 2019, the draft O&M Manual submitted on August 12, 2019, and the MassDEP inspections on July 10, 2019, and August 12, 2019, MassDEP issues Devens this Activation Approval for the activation of Train B of the GAC treatment system at the Shabokin Well. In addition to the PFAS treatment, the Shabokin Well water is further treated at the Shabokin Well WTP to meet other drinking water quality standards. Pursuant to MassDEP’s authority under 310 CMR 22.04(7) to require that each supplier of water operate and maintain its system in a manner that ensures the delivery of safe drinking water to consumers, this Activation Approval is made subject to the conditions set forth below:

Specific Permit Conditions

1. Treatment System – The treatment system shall remain online whenever Shabokin Well is in operation, unless directed or authorized otherwise by MassDEP. Devens shall notify MassDEP (Robert.Bostwick@mass.gov) via email if the well is taken off-line.
2. PFAS Monitoring Sampling Plan – Devens shall follow the approved PFAS monitoring plan included in the June 13, 2019 permit approval letter, and any changes to the sampling/monitoring plan shall be approved by MassDEP and incorporated into Devens’ approved sampling plan. MassDEP may require additional sampling to evaluate the effectiveness of the treatment system.
3. Sampling and Analysis – All water quality analyses must be conducted by a Massachusetts certified laboratory as applicable, using approved methods and achieving the required method detection limits, and submitted on MassDEP water quality reporting forms. Special sample data from operational monitoring shall also be submitted to MassDEP. With two trains on, the sampling locations and codes are changed to the following:


Location Code	Location Name
RW-06G	Raw Water: Shabokin Well
MP-TA6	Mid-Point: Shabokin Train A
MP-TB6	Mid-Point: Shabokin Train B
PT-TA6	Shabokin Train A Post Treatment
PT-TB6	Shabokin Train B Post Treatment
06G	Finished: Shabokin WTP (100 Ft Tap)

4. Recommended Monitoring - In order to insure optimum performance of this treatment system, MassDEP is recommending the following additional sampling be conducted:

- Total and dissolved iron and manganese monitoring samples be collected from the raw water, the midpoint of each treatment train, and the effluent of each treatment train on a weekly basis;
 - On weekdays, twice daily monitoring of the pressures before and after the GAC vessels until the pressure differential gauges have been connected to SCADA;
 - On weekends, once daily monitoring of the pressures before and after the GAC vessels until the pressure differential gauges have been connected to SCADA;
 - TOC monitoring, as submitted with the proposed sampling plan as part of the permit application (MassDEP Trans. # X283482).
5. Pressure – The system pressure after all treatment shall be monitored by SCADA, and alarms shall call out to notify operators before the system pressure reaches 125 psi. The existing pressure relief valve in the Shabokin Well WTP shall open before system pressure reaches 125 psi.
 6. Treatment Grade – The Shabokin Well WTP will continue to be classified as a 1-T treatment system and will require a primary operator with a full 1-T license or higher to operate the facility.
 7. Winterization Plan – As this full scale pilot GAC treatment system is expected to run a minimum of 12 months, a winterization plan for the PFAS treatment system shall be developed and submitted to MassDEP by October 31, 2019 and implemented by November 30, 2019.
 8. O&M Manual and As-Builts – Within thirty days of activation, MassDEP shall receive, and Devens MassDevelopment shall have on hand, a complete Operation and Maintenance (O&M) Manual for the operation of the GAC filters, as well as a set of as built plans. The O&M manual shall include instructions on proper sampling procedures and locations, how to start up and shut down the system, how to backwash the filter, and how to change the media.
 9. Media Change – Devens shall notify MassDEP (Robert.Bostwick@mass.gov) via email when the media is replaced. When the GAC media has reached exhaustion and is changed, if a different GAC or anion exchange media is used to replace the initial GAC media as part of the full scale pilot study evaluation, MassDEP must be notified. The notification shall include NSF certification for the media, media installation procedures, backwash procedures and a revised sampling plan.

Thank you, and if you should have any questions or comments regarding this matter, please feel free to contact Margo Webber or Kate Conoby of the Drinking Water Program at 508-767-2738 or 508-849-4027 respectively.

Sincerely,



Robert A. Bostwick
Section Chief
Drinking Water Program

Cc: Drinking Water Program, BWR, MassDEP-Boston
Certified Operator: Shawn Meunier, Suez, 85 Walker Road, Shirley, MA 01464
Blake Martin, Weston & Sampson Engineers, Inc., 55 Walkers Brook Drive, Suite 100, Reading, MA 01867