



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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August 20, 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**
MassDEP Trans. #: X283482

Dear Mr. Moore:

The Central Regional Office of the Massachusetts Department of Environmental Protection (MassDEP) Drinking Water Program (DWP) received your permit application WS21 for 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 June 13, 2019, MassDEP issued the permit to Devens MassDevelopment (Devens) and authorized the work proposed in the WS21 permit application that included the installation of two trains of two Model 12 Modular Carbon Adsorption systems operated in series for the removal of PFAS prior to discharging PFAS-treated water to the Shabokin WTP for pH adjustment and corrosion control treatment. Each train 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. Due to the expedited schedule of this project, the permit authorized the project to serve as a full scale pilot for PFAS treatment as Devens evaluates permanent treatment and source options. The permitted treatment system will be temporary until the construction of a permanent PFAS treatment system is developed, permitted, and put online at the Shabokin WTP.

Currently, Devens obtains its water from three wells; the MacPherson Well (03G), the Patton Replacement Well (05G) and the Shabokin Replacement Well (06G). Each well has its own treatment plant and the system has two water storage tanks. The MacPherson Well (03G) has raw water PFAS concentrations above the current ORSG advisory level of 70 parts per trillion (ppt) for 5 PFAS contaminants (perfluorooctanoic acid – PFOA, perfluorooctanesulfonic acid – PFOS, perfluoroheptanoic acid - PFHpA, perfluorohexanesulfonic acid - PFHxS, perfluorononanoic acid – PFNA). This well was taken off line in February 2018 and reactivated on July 31, 2019 with the

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installation of a GAC pressure filtration vessel for removal of PFAS.

On July 10, 2019 and August 12, 2019, MassDEP conducted activation inspections of the approved PFAS treatment pilot study at the Shabokin Well. MassDEP confirmed that the treatment system has been installed according to the permit issued on June 13, 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.

Review and Approval

Based on the engineer's certification dated August 15, 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 A of the GAC treatment system at the Shabokin Well. In addition to the PFAS treatment, the Shabokin Well 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's 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. Submitted data shall use the following sample location codes:

Location Code	Location Name
RW-06G	Shabokin Well Raw Water
MP-TA	Mid-Point: Shabokin Train A
MP-TB	Mid Point: Shabokin Train B
PT-TA	Shabokin Train A Post Treatment
PT-TB	Shabokin Train B Post Treatment
MULT6	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 submitted with 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.

10. Train B – Prior to the Train B GAC filtration vessels going on line, MassDEP must receive copies of the PFAS data for raw, mid point and post treatment.

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
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