



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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August 5, 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. #: X283618

Dear Mr. Moore:

The Central Regional Office of the Massachusetts Department of Environmental Protection (MassDEP) received a permit application, WS21 – Full Scale Pilot Study on May 30, 2019 for the MacPherson Well in Devens (Tr# X283618). The permit application was for the installation of a temporary Granular Activated Carbon (GAC) treatment system for per- and polyfluoroalkyl substances (PFAS) removal from the raw water at the MacPherson 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 permit application that included the installation of one GAC filter vessel for the removal of PFAS prior to discharging water to the MacPherson Water Treatment Plant for pH adjustment and corrosion control treatment. Due to site constraints, only a single vessel was installed with sample taps located at the 25%, 50%, and 75% filter bed depth locations. The system is designed to treat 400 gpm of flow through the single vessel. 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 MacPherson Well WTP.

Currently, Devens obtains its water from three wells, each with their own treatment plant, and stores water in two water storage tanks. The MacPherson Well (03G) has 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) and was therefore taken off line in February 2018. Devens has relied on the Patton Replacement Well (05G) and the Shabokin Replacement Well (06G) for water since that time. A PFAS treatment pilot study is also being installed at the Shabokin Well WTP.

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

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On July 10, 2019 and July 25, 2019, MassDEP conducted activation inspections of the approved PFAS treatment pilot study at the MacPherson Well. MassDEP confirmed that the treatment system has been installed according to the permit issued on June 13, 2019. The results of water quality samples of the influent, 25% filter bed depth sample tap, and effluent water collected on July 11, 2019 from the treatment system and analyzed for PFAS were 88.8 ppt, no detect (ND), and ND respectively. A bacteria sample of the effluent of the treatment system also collected on July 25, 2019 confirmed the water was absent of Total Coliform.

Review and Approval

Based on the engineer's certification dated July 23, 2019, the draft O&M Manual submitted on July 23, 2019, and the MassDEP inspections on July 10, 2019, and July 25, 2019, MassDEP issues Devens this Activation Approval for the reactivation of the MacPherson Well and the operation of the PFAS treatment system for the MacPherson Well raw water. In addition to the PFAS treatment, the MacPherson Well is further treated at the MacPherson 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 MacPherson 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-03G	MacPherson Well Raw Water
SS-C25	MacPherson 25% GAC Tap
SS-C50	MacPherson 50% GAC Tap
SS-C75	MacPherson 75% GAC Tap
PT-CE3	MacPherson Post Carbon Effluent
03G	MacPherson WTP – Finished Water

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, after the bag filter, 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 vessel and recorded in a log book that is kept on-site;
 - On weekends, once daily monitoring of the pressures before and after the GAC vessel and recorded in a log book that is kept on-site;
 - TOC monitoring, as submitted with the proposed sampling plan submitted with the permit application (MassDEP Trans. # X283618).
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 MacPherson Well WTP shall open before system pressure reaches 125 psi.
6. Treatment Grade – The MacPherson 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 filter, 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.

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

Sincerely,



Robert A. Bostwick
Section Chief
Drinking Water Program

cc: Drinking Water Program, BWR, MassDEP-Boston, MassDEP-CERO
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