

## Update from the Shrewsbury Water Department

Our new water treatment plant facility has now been in full operational status since the early part of October. The \$12 million dollar project started construction in July, 2017 which involved building a biological manganese filtration facility while keeping the existing plant on line until completion. Also six of our eight groundwater supply wells were refurbished with the new pumps, motors and motor control centers to match the new pump head conditions.

Testing began in early September and approximately forty (40) percent of the total daily flow began being pumped out to the system in late September with the remainder being supplied by the old facility. Since early October all system water has been processed through the new plant.

The treatment plant uses a treatment process developed in Europe by Suez Water Technologies and Solutions, a subsidiary of Suez Water which is the largest water company in the world. The treatment process utilizes the newest generation of manganese removal filtration which encompasses a greener more environmentally sustainable methodology to biologically remove the manganese than compared to conventional treatment methods used extensively by water utilities of chemically precipitating out the manganese. This process also allows for higher flow and filtration rates and longer run times between backwashes to improve water quality.

After partial acclimation with the biological manganese biomass in a three week startup period, we were at 0.0 ppm of manganese entering the system and continue to remain at that level. Representative samples taken throughout the system weekly confirm that manganese levels are at zero or near zero at all sites. We are looking for full filter acclimation by late January, 2019.

The distribution system of existing water main and services has older buildup of manganese of varying degrees depending on the type of pipe and location in the system. As we change the biological and chemical composition of the finished water, the existing manganese inside the pipes will start to break up and dissipate as the pipe environment changes. This situation is expected and can cause temporary discolored water as the system readjusts. In early spring weather permitting, the Department will be conducting hydrant flushing to remove existing manganese and sediment. The process will be repeated again in the fall. It will take a period of time to clean out and remove remaining pipe deposits but conditions should steadily improve between the treatment removal process and flushing of the distribution system.

As part of the new treatment process, we are running what is known as a double barrier contact time process to protect against potential viruses and pathogens. This process is intended to be run as a log-four removal (99.99 % process) which involves keeping a chlorine residual of 0.4 ppm. The previous plant used chlorine gas as a disinfectant and with insoluble manganese that could not be removed from entering the system, the chlorine would bind to the manganese. Now with the manganese component removed along with a higher chlorine level, the chlorine is

working more freely throughout the system. Customers that experience a strong chlorine taste or odor in the water are actually encountering a level of chlorine that is too low as it is being used up by organic matter bound by the existing manganese and a small amount of iron in the pipelines. As the demand is used up and a free chlorine residual of at least 0.1 ppm is established further out in the system, any strong chlorine tastes or odors should dissipate. We are gradually adjusting our levels of chlorine to reach this free chlorine system residual which is known as break point chlorination. We thank all our customers for their patience and understanding as we implement these changes into our treatment process to achieve our overall goal of improved and consistent water quality throughout the Town.