

Poughkeepsies' Water Treatment Facility

MEMORANDUM

March 1, 2018

To: Poughkeepsie Joint Water Project Board
From: Randy J. Alstadt, P.E.

Subject: **Treatment Issues and Concerns**

Since the completion of the upgrade we have identified additional issues that must be addressed. They consist of the4 following.

1. UV disinfection System
2. Biological Filtration issues and impact to plant capacity
3. Possible elimination of UV Disinfection System

Details are as follows.

UV Disinfection System

The UV disinfection System was installed in 2004, with the intent to eliminate chlorination in our sedimentation basins, thereby reducing disinfection byproducts. The system consists of 6 UV reactors, twelve (12) control panels and three (3) uninterruptable power supplies (UPS). We have been advised by Aquionics (UV supplier) and Schneider Electric that the UV system components will no longer be supported in 2019. Furthermore, Schneider Electric advised that the batteries and capacitors, which are now over 6 years old, could create a fire. Given the UPS will no longer be supported in 2019 upgrading the batteries and capacitors Schneider and they strongly recommend the batteries. We contacted the battery manufacturer who advised that they have had batteries in service over twelve (12) years without any problem.

Costs to replace the batteries and capacitors is currently estimated at \$70,000. Cost to replace the UPS system is estimated at \$175,000.

The UV system utilizes considerable energy and maintenance is high. In 2018 we budgeted \$70,000 for UV parts and \$76,000 for electric.

Biological Filtration Issues

In order to operate the filters as biological filters we have been required to operate all filters all the time. This has increased filter run hours, 22,500 hours, over 2016 usage and increased backwash volume 7 million gallons (30-percent). We have also observed significant reduction in filter run hours and filter rapid plugging when flows are increased. Since the conversion we have had a maximum daily production of 12 MGD.

Possible Elimination or Replacement of UV Disinfection System

Design of the ozone system was for the reduction of disinfection by-products not disinfection, however, we included provisions to obtain disinfection credit. To get approval for disinfection credit we will need to present a proposal to New York State Department of Health (DOH) for approval. In order to acquire approval we will need support from an Engineer to provide request and likely meet with DOH.

Recommendation

I recommend the Water Board approve issuing a Request for Proposal for an Engineering Firm to evaluate above concerns and if recommended seek and obtain DOH approval for elimination of the UV disinfection system. I estimate the Engineering effort will be \$30,000 to \$50,000.

The RFP should be sent to firms that have significant experience in BAC filtration, UV disinfection, ozone and working with DOH.