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COUNTY OF DUTCHESS

DEPARTMENT OF BEHAVIORAL AND COMMUNITY HEALTH
DIVISION OF ENVIRONMENTAL HEALTH SERVICES

July 29, 2017

Chairman
Joint City/Town Water Board
3431 North Road
Poughkeepsie, NY 12601

Re: Poughkeepsie Joint City/Town Treatment Plant
Public Water Supply Federal ID NY1302774
Town of Poughkeepsie

Dear Mr. Chairman:

Part 5 of the New York State Sanitary Code addresses your responsibilities relative to ownership, operation and monitoring of the above referenced facility. On July 27, 2017 this department conducted an inspection of the above referenced public water supply system. I met with the designated operator, Randy Alstadt, to discuss the facility. The inspection revealed that the above referenced water supply is in compliance with Part 5 of the New York State Sanitary Code relative to operation, treatment and monitoring. The following observations, recommendations and/or requirements are offered.

Production:

The water treatment facility supplies water to the City of Poughkeepsie (Fed. ID# NY1330291), Town of Poughkeepsie (Fed. ID# NY1302812), Arbors Water District (Fed. ID# NY1303219), the Greenbush Water District (Fed. ID# NY1330629), and the Central Dutchess Transmission Line (Fed. ID# NY1330640) distribution systems. The Village of Wappingers Falls (Fed. ID# NY1302783) has an interconnection to use your water, but is not currently doing so.

At the moment, water is pumped independently of the tide stage. Average daily production is about 10 million gallons per day (MGD). The plant is approved to treat 19.3 MGD. Influent turbidity was 83 NTU and the plant was treating about 6 MGD during the inspection.

Process:

A screened intake structure in the Hudson River delivers water to the low lift pump station. The permanganate Zebra mussel control system has been removed (except for the pipe, which is now used for sending compressed air to the intake screens). The old intake is also available but has not been tested this year. The water is divided into two chambers and pumped by four 7 MGD pumps (from 2017). Up to three pumps are used for normal operation, the fourth is for redundancy. Two of these "low lift" pumps have VFD control. The water is pumped through a flow meter to the rapid mix to the solids contactor and sedimentation basin. Carbonic acid (pH adjustment) and polyaluminum chloride (coagulant) are mixed statically. Strategically placed fishing line keeps birds out of the solids contactors. The settling basins are covered by tarps to minimize algae growth in the basin. Some red algae grows on the top of the tarps. Four

variable speed pumps lift the settled water to the ozone contact tanks. Ozone and hydrogen peroxide (35%) are added sequentially. After some ozone contact time the peroxide is used to convert remaining ozone to OH, which helps break down organics. Ozone escaping in the tank vents is captured in by a suction system which removes the ozone prior to releasing the air to the atmosphere. Ozone is generated from liquid oxygen in special reactors. Nitrogen is gathered from the atmosphere and used in the ozone generating process to improve concentration and efficiency. The water is then filtered in six rapid sand filters. Five of the filters are operated at once. The sixth is in reserve. Filters run 3 to 5 days before backwashing. During backwash, the plant uses four filters. The anthracite filter media was replaced by granular activated carbon as part of an upgrade to provide better treatment in order to reduce disinfection byproduct formation. The media was replaced from the fall to winter of 2015. After filtration the water is treated with UV for disinfection, then sodium hydroxide and sodium hypochlorite for pH adjustment and residual disinfectant. Lastly, phosphoric acid is added for corrosion control. Ozone was put on line October 2016. Carbonic acid pH adjustment was put on line in January 2017. Hydrogen Peroxide was put on line June 2017. An equalization basin then feeds the four high lift pumps.

Sludge and backwash water are collected from the contactor, settling basins, and filters. A separate treatment plant separates the solids (settlers, centrifuges, clarifier). Two new centrifuges were installed in the waste treatment building in 2017. Clarifloc A-6320 polyacrylamide is used to aid sludge processing.

Waste is composted at Duffy Layton in Standfordville.

Operators:

Per Subpart 5-4 – *Classification and Certification of Community and Nontransient Noncommunity Water System Operators*, a grade IA operator is required to operate the above referenced public water supply. A grade IIA assistant operator is required. This qualification is met.

The plant is operating with 18 employees. There are seven maintenance workers, eight operators, a laboratory directory and worker, and an administrator. In the short term, sludge management has required overtime. Appropriate personnel must be included in the proposed treatment and centrifuge improvements.

Monitoring:

The attached schedule has been provided to you as a general guide only. It is the responsibility of the supplier and not this department to make sure all monitoring is performed per the methods, procedures and time periods indicated in Part 5 of the New York State Sanitary Code or as required by the United States EPA or New York State Health Department.

The schedule does not include distribution system sampling requirements. Bacteriological, disinfection byproduct and lead and copper samples are due from tenant districts.

Emergency Plan and Vulnerability Assessment:

The Emergency Response Plan and Vulnerability Assessment are due January 2018. Previous plans were updated but, due to the rapid changes at the plant, were never complete. The plan must be coordinated with the districts served.

The plant has several emergency power systems. A 2 MW 3 phase 480 V Caterpillar turbo diesel generator (2005) can power most of the plant. This generator's 2500 gallon fuel tank was reported as full. The generator is switched on manually. Plant start up takes one to three hours depending on how many operators are available. A 350 KW generator powers the low lift pumps. There is a 57 KW Cummins V10 turbo natural gas powered generator located in the pump room which can supply the lighting, heating, and computer terminals. The Cummins has an automatic transfer capability. Generators are exercised weekly. The entire plant is run on generator power either for practice or power grid load balancing in the summer.

The UV system is protected by an uninterruptible power supply which can maintain disinfection long enough for the system to shut down. The batteries are replaced according to a preventative maintenance schedule. The computer system is also protected. The PLCs and SCADA equipment are now protected with a new uninterruptible power supply. Plant restart is currently done manually.

A 6 mgd portable engine driven pump is available to backup the pumps at the intake station. This pump has not been tested. Fittings for connecting the pump are not on site.

All accesses were locked. Some have alarms. Chemical deliveries are monitored by plant personnel.

The low lift station may be subject to flooding. The pumps and electrical panels were elevated by a foot as part of the 2017 upgrade. An Onan generator is installed to power the low lift pumps. In January 2014, the intake was blocked by frazil ice. Mr. Alstadt wrote an incident report and is addressing the problem several ways. A wet well monitor has been installed. This should provide better warning. Monitoring of the specific weather conditions thought to promote frazil ice formation is being added to the standard winter operating procedures. Maintenance work is being done to the 24 inch intake. A screen should be added to that intake. Changes with respect to flows are being considered for winter operations when frazil ice may be expected. Conservation measures will be recommended as soon as intake capacity is diminished.

Disinfection Byproducts:

The disinfectant change (free chlorine replacing chloramines) in 2010 has resulted in higher disinfection byproduct levels in the distribution systems. The City, Town, and Plant were under a consent order from the USEPA to install new treatment to reduce disinfection byproducts. The new treatments are now functioning and being optimized. New operational testing has been instituted, including R2A testing to assess biological activity on the filters. Preliminary analysis shows improved water quality.

Maintenance and Operation:

All plumbing is well maintained, painted, color coded and labeled. Certain items were in the midst of being repaired or labeled. Leaks were present in the new ozone treatment building. These are being repaired by the contractor.

In 2015, the ammonia tank was converted for orthophosphate and the orthophosphate tanks now hold alum. The alum is for enhanced coagulation.

An inventory of spare parts is available. Most equipment is on a preventative maintenance schedule. For example, the low lift pumps and centrifuges are rebuilt every 5 years.

Chemical dosages are based upon UV254 testing results on the influent and before the sedimentation basin.

The paddle mixer in the solids contact tank has not worked since 1996. There are no plans to return this unit to service. Baffles installed in the tank appear to be providing adequate mixing. There is splashing and leakage in this area.

Many of the concrete walls show calcium leaching.

In 2015, Polydyne N3300 polymer was used as a filter aid. This chemical is NSF approved for up to 1 mg/l dosing.

An overfill warning system is installed in the tank fill area. Automatic shut off valves on the tank outlets are triggered by overflow or leakage to the containment areas.

Communication:

The Poughkeepsies' Joint Water Treatment Plant is the source of water for six distribution systems. Any changes or proposed changes in water quality must be communicated to the

other systems. Input from the distribution systems must be considered when contemplating water quality changes.

A great deal of information has been generated by the plant and the distribution systems. Much of this information is not in a format conducive to analysis. No single party has access to all the information. No party is designated to analyze the information. The plant has improved its connections to the city, town, and DCWWA for data collection.

While the individual system can and have been managed independently, cost savings and health benefits can be realized by treating the systems as a single interdependent entity.

Action:

Submit the updated emergency plan documents. Repair leaks.

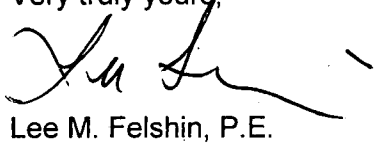
Exercise emergency procedures such as use of the old intake and running the plant on emergency power.

Coordinate with the distribution systems.

As always I appreciate the time you and your operators set aside for discussion of plant status and monitoring of the facility.

Please review the information and contact me at (845) 486-3404 should there be any questions.

Very truly yours,



Lee M. Felshin, P.E.
Senior Public Health Engineer
Environmental Health Services

cc: Randy Alstadt (via email)
PM → File 1302774

SDWIS/State Water Sample Schedule Report

POUGHKEEPSIE CITY/TOWN TREATME PWS ID: NY1302774

Due 2017	Contaminant (Group)/ Sample Location/Frequency	Last Compliance Results	Sample Requirements
	Bromate		
☑	**Location: POUGHKEEPSIE WTP ID: TP101** **Frequency: 1 Sample Monthly** Sample Point: ENTRY POINT Sample Point No.: EP Sample Point Type: EP-Entry Point Required when ozone is in use.	Samples last collected: 5/10/2017	**1 Sample must be collected every month.**
	Nitrate		
☑	**Location: POUGHKEEPSIE WTP ID: TP101** **Frequency: 1 Sample Yearly** Sample Point: ENTRY POINT Sample Point No.: EP Sample Point Type: EP-Entry Point	Samples last collected: 8/1/2016	**Sample must be collected by 12/31/2017**
	Part 5-1.52 Table 8B - Primary Inorganic Chemicals		
☑	**Location: POUGHKEEPSIE WTP ID: TP101** **Frequency: 1 Sample Yearly** Sample Point: ENTRY POINT Sample Point No.: EP Sample Point Type: EP-Entry Point	Samples last collected: 8/1/2016	**Sample must be collected by 12/31/2017**
	Part 5-1.52 Table 9B - Principal Organic Chemicals		
☑	**Location: HUDSON RIVER ID: IN001** **Frequency: 1 Sample Yearly** Sample Point: RAW INTAKE HUDSON RIVER Sample Point No.: RAW Sample Point Type: RW-Raw Water Source	Samples last collected: 8/1/2016	**Sample must be collected by 12/31/2017**
	Asbestos		
☐	**Location: POUGHKEEPSIE WTP ID: TP101** **Frequency: 1 Sample Every 9 years** Sample Point: ENTRY POINT Sample Point No.: EP Sample Point Type: EP-Entry Point	Last Sample Collected on or Before: 8/1/2016	**Next sample must be collected between 1/1/2023 and 12/31/2031**
	Part 5-1.52 Table 12 - Radiological		
☐	**Location: POUGHKEEPSIE WTP ID: TP101** **Frequency: 1 Sample Every 9 years** Sample Point: ENTRY POINT Sample Point No.: EP Sample Point Type: EP-Entry Point	Samples last collected: 8/1/2016	**Next sample must be collected by 12/31/2025**
	Part 5-1.52 Table 9C - Synthetic Organic Chemicals		
☐	**Location: HUDSON RIVER ID: IN001** **Frequency: 1 Sample Every 18 Months** Sample Point: RAW INTAKE HUDSON RIVER Sample Point No.: RAW Sample Point Type: RW-Raw Water Source	Samples last collected: 8/1/2016	**Next sample must be collected by 6/30/2018**