Appleton Water Treatment Plant
Operations Synopsis
October, November, December 2017

Summary

The table below presents selected water production and quality performance metrics for the current and previous reporting periods. All compliance parameters met or exceeded regulatory requirements. During the quarter, average water production decreased by about 11% and average lake turbidity increased by 24% consistent with seasonal change. As expected, the average ratio of electrical energy consumption to production volume has plateaued following transition to conventional filtration and UV disinfection.

WATER PLANT PARAMETERS	Previous (Q3 2017)			Current (Q4 2017)		
	July	August	September	October	November	December
Water Treated						
Finished (million gallons)	303.9	310.4	282.6	274.7	259.1	266.7
Finished (million gallons / day)	9.8	10.0	9.4	8.9	8.6	6.2
Electrical Energy (WTF)						
Consumption (Megawatt-hours)	517.7	509.8	475.2	467.5	437.7	460.5
MWH / million gallons produced	1.70	1.64	1.68	1.70	1.69	1.73
Turbidity						
Lake (NTU)	17.1	31.1	27.5	42.3	26.7	24.7
Finished (NTU)	0.02	0.03	0.02	0.02	0.02	0.02
Finished (<0.15 NTU standard)	100%	100%	100%	100%	100%	100%
Water System Microbial Quality						
Total Coliform Samples	81	81	82	81	81	81
Compliance with Standard	100%	100%	100%	100%	100%	100%
Disinfectant Contact Time						
Minimum CT Ratio Provided	5.7	5.7	4.9	2.4	1.2	1.3
Hardness						
Lake Total / Calcium (mg/L)	178/93	163/80	166/79	171/89	184/104	191/106
Finished Total / Calcium (mg/L)	84/20	78/18	82/19	82/19	93/24	97/30
Finished Water Quality						
Total Chlorine (mg/L)	1.76	1.83	1.88	1.95	1.91	1.77
pH (SU) Min/Max	8.2/8.9	8.1/8.8	8.3/8.8	8.3/8.9	8.7/8.9	8.5/8.9
Water Temperature (Degrees F)	75.9	73.6	69.8	59.9	39.9	34.0
Fluoride (mg/L)	0.72	0.72	0.68	0.67	0.67	0.67
Orthophosphate (mg/L)	0.82	0.80	0.68	0.61	0.63	0.61

Laboratory

- In support of plant operations, staff conducted analyses according to method protocols for pH, turbidity, alkalinity, hardness, free/total chlorine, ammonia, phosphorus, and fluoride.
- In support of distribution operations, staff performed required 81 monthly Coliform bacteria analyses along with heterotrophic plate count (HPC) testing.
- Staff collected and processed raw and finished water samples to comply with LT2, DBPR2, HAB sampling requirements. Support was provided to consecutive customers with shipping of DBPR2 samples.

- Preparations were made for upcoming Unregulated Contaminant Monitoring Requirements slated for 2018.

Safety

- WTF Safety programs were maintained by completing scheduled safety inspections and monthly meetings. There were no significant incidents to report.

Operations

- #5 Lake Pump lower bearing was replaced.
- Treatment plant electrical substations were cleaned and inspected.
- North reservoir re-coating project has been completed and returned to service.
- #4 Softener was cleaned and the coating warranty inspection was conducted.
- Two UV Disinfection reactors were in continuous service during the quarter.
- “Bank 2” lamps for all four UV reactors (8 lamps total) were replaced as the 7,000-hour operating threshold had been exceeded.
- Chemical systems design and rehabilitation project continues.
- Database development continues for the implementation of the new plant data management and reporting system (Hach WIMS).

RUPIP

- Merrick Systems continued lime system warranty work to resolve level transmitter and other related issues.
- CFE Wet Well interstitial space leakage was discussed with the Engineer and contractor with dewatering, inspection, and any necessary repairs scheduled for January.

Staffing & Training

- All staff have completed mandatory department and City safety and employee training for the year.
- Performance evaluations were completed for all staff. All staff scores were “consistent” or “exceptional” in each of their goal or competency categories. The continued success and cost-effectiveness of the Appleton Water Treatment Facility can be directly attributed to the professionalism, dedication, and performance of the staff.