

**Appleton Water Treatment Plant
Operations Synopsis
January, February, and March 2019**

Performance Summary

The table below presents selected water production and quality performance metrics for the current and previous reporting periods.

Treated Water Quality. All compliance parameters met or exceeded regulatory requirements. On January 18, 2019, failure of a hypochlorite pump resulted in a 3-hour window during which the CT ratio was less than 1.0.

Water Production. Compared with Q4 of 2018 (quarter over quarter or Q/Q), average water production increased slightly by 1.5%. Compared with Q1 of 2018 (year over year or Y/Y), average water production was flat.

Raw Water Quality. Q/Q average raw water turbidity substantially decreased consistent with ice cover on Lake Winnebago. Y/Y average raw water turbidity decreased by about 1 NTU.

Energy Efficiency. In terms of applied electrical energy, Q/Q efficiency declined by less than 1%. However, Y/Y performance improved by over 2%.

WATER PLANT PARAMETERS	Previous (Q4 2018)			Current (Q1 2019)		
	October	November	December	January	February	March
Water Treated						
Finished (million gallons)	268.6	254.3	263.5	267.1	246.6	271.0
Finished (million gallons / day)	8.7	8.5	8.5	8.6	8.8	8.7
Electrical Energy (WTF)						
Consumption (Megawatt-hours)	441.6	441.3	460.6	440.3	427.2	476.2
MWH / million gallons produced	1.64	1.73	1.75	1.65	1.73	1.76
Turbidity						
Lake (NTU)	27.8	25.5	4.8	2.8	1.4	2.8
Finished (NTU)	0.02	0.02	0.03	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	81	81	81	81
Compliance with Standard	100%	100%	100%	100%	100%	100%
Disinfectant Contact Time						
Minimum CT Ratio Provided	1.8	1.3	1.3	0.5	1.3	1.0
Hardness						
Lake Total (mg/L)	168	179	187	194	201	202
Finished Total (mg/L)	84	98	107	106	110	105
Finished Water Quality						
Total Chlorine (mg/L)	1.94	1.90	1.94	1.93	1.90	1.88
pH (SU) Min/Max	8.7/9.0	8.8/9.0	8.8/8.9	8.8/8.9	8.8/8.9	8.8/8.9
Water Temperature (Degrees F)	53.1	38.8	34.7	33.4	34.9	36.5
Fluoride (mg/L)	0.67	0.68	0.68	0.64	0.67	0.70
Orthophosphate (mg/L)	0.81	0.75	0.71	0.70	0.70	0.70

Laboratory

- In support of plant operations, staff conducted analyses according to method protocols for pH, turbidity, alkalinity, hardness, free/total chlorine, ammonia, phosphorus, potassium permanganate, 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 Disinfection By-Products Rule (DBPR) sampling requirements. Provided support to consecutive customers with shipping of DBPR2 samples.

Safety

- Maintained WTF Safety programs by completing scheduled safety inspections, fire prevention inspections, and monthly meetings. No significant incidents to report.

Operations

- Cleaned Softener #3 and South Recarbonation basin.
- Successfully completed annual WPPI generator capacity test.
- Operated two UV Disinfection reactors continuously during the quarter.
- Continued database development for the implementation of the new plant data management and reporting system (Hach WIMS).
- Completed the assessment/concept design phase for the Lake Station upgrade and Second Intake project.
- Continued the Chemical Systems Upgrade Project Phase 1 with completion scheduled for the first half of 2019.
- Continued update to the Distribution System Master Plan in collaboration with DPW. Study completion scheduled for Q2 of 2019.

Staffing & Training

- All staff have completed City Safety as well as Utilities Department Safety training requirements for the year.
- The new Water Plant Operator completed OJT and began normal shift coverage on Saturday, March 2.