

**Appleton Water Treatment Plant
Operations Synopsis
October, November, December 2018**

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.

Water Production. Compared with Q3 of 2018 (quarter over quarter or Q/Q), average water production decreased by 14% consistent with reduction in seasonal demand. Compared with Q4 of 2017 (year over year or Y/Y), average water production decreased slightly by 1.8%.

Raw Water Quality. Average raw water turbidity decreased Q/Q by about 36% and Y/Y by about 38% as expected due to Lake Winnebago seasonal effects.

Energy Efficiency. In terms of applied electrical energy, Q/Q efficiency declined by about 2% due to increased backwash water volumes and UV reactor power requirements. However, Y/Y performance was unchanged.

WATER PLANT PARAMETERS	Previous (Q3 2018)			Current (Q4 2018)		
	July	August	September	October	November	December
Water Treated						
Finished (million gallons)	326.2	309.4	278.3	268.6	254.3	263.5
Finished (million gallons / day)	10.5	10.0	9.3	8.7	8.5	8.5
Electrical Energy (WTF)						
Consumption (Megawatt-hours)	563.9	510.0	460.3	441.6	441.3	460.6
MWH / million gallons produced	1.72	1.65	1.65	1.64	1.73	1.75
Turbidity						
Lake (NTU)	24.8	26.5	40.1	27.8	25.5	4.8
Finished (NTU)	0.02	0.02	0.03	0.02	0.02	0.03
Finished (<0.15 NTU standard)	100%	100%	100%	100%	100%	100%
Water System Microbial Quality						
Total Coliform Samples	81	82	81	81	81	81
Compliance with Standard	100%	100%	100%	100%	100%	100%
Disinfectant Contact Time						
Minimum CT Ratio Provided	6.1	5.5	3.6	1.8	1.3	1.3
Hardness						
Lake Total (mg/L)	156	150	158	168	179	187
Finished Total (mg/L)	79	76	79	84	98	107
Finished Water Quality						
Total Chlorine (mg/L)	1.85	1.82	1.91	1.94	1.90	1.94
pH (SU) Min/Max	8.3/8.7	8.5/9.1	8.3/9.1	8.7/9.0	8.8/9.0	8.8/8.9
Water Temperature (Degrees F)	79.3	77.7	71.1	53.1	38.8	34.7
Fluoride (mg/L)	0.68	0.67	0.67	0.67	0.68	0.68
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.
- Completed Unregulated Contaminant Monitoring (UCMR4) sampling for the quarter.
- Completed Lake Winnebago Harmful Algal Blooms (HAB) monitoring with WDNR.

Safety

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

Operations

- 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).
- Continued assessment/concept design phase for the Lake Station upgrade and Second Intake project.
- Commenced 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.
- Maintained finished water quality despite decreased Ultraviolet Transmittance (UVT) in filter effluent.

Staffing & Training

- The Water Plant Operator vacancy resulting from a transfer to Relief Operator was filled by a Wastewater Plant Operator (effective 12/31/18).