

**Appleton Water Treatment Plant
Operations Synopsis
July, August, September 2014**

Summary

The following table summarizes 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 increased by about 5% to meet increased demand consistent with summer weather conditions. Average raw water turbidity increased significantly during the quarter as summer weather conditions promoted Lake Winnebago algae production. Average purchased electrical energy efficiency improved quarter-over-quarter by about 6%.

WATER PLANT PARAMETERS	Previous (Q2)			Current (Q3)		
	April	May	June	July	August	September
Water Treated						
Finished (million gallons)	252	282	277	297	291	265
Finished (million gallons / day)	8.4	9.1	9.2	9.6	9.4	8.8
Electrical Energy (WTF)						
Consumption (Megawatt-hours)	514.4	560.3	587.9	608.0	612.9	548.6
MWH / million gallons produced	2.04	1.99	2.12	2.05	1.68	2.07
Turbidity						
Lake (NTU)	9.0	8.6	19.7	39.9	44.3	36.5
Finished (NTU)	0.02	0.03	0.02	0.03	0.02	0.03
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 Required	1.0	1.0	1.0	1.0	1.0	1.0
Minimum CT Ratio Achieved	2.03	2.33	2.42	2.50	2.62	3.54
Hardness						
Lake Total / Calcium (mg/L)	206/112	193/104	170/94	167/88	164/89	179/95
Finished Total / Calcium (mg/L)	104/31	89/21	86/16	85/18	87/16	91/18
Finished Water Quality						
Total Chlorine (mg/L)	2.26	2.14	2.12	2.15	2.18	2.15
pH	8.4/9.1	8.2/9.1	8.2/9.1	8.5/9.2	8.7/9.2	8.6/9.1
Water Temperature (Degrees F)	40.6	56.1	71.4	73.4	74.1	67.3
Fluoride (mg/L)	0.72	0.73	0.73	0.70	0.66	0.76
Orthophosphate (mg/L)	0.70	0.68	0.81	0.84	0.84	0.71

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.
- Performed expanded seasonal water quality monitoring of the North Pressure Zone.
- Provided technical support to wholesale water customers with Disinfection Byproducts Rule 2 (DBPR2) monitoring requirements.

Safety

WTF Safety programs were maintained by completing scheduled safety meetings and all inspections. There were no significant incidents to report. Technical staff are evaluating requirements, protocols, and supporting personal protective equipment (PPE) for the handling and use of aqua ammonia.

Operations

- A warranty claim for 50 replacement cartridges was submitted in accordance with the Membrane Warranty Agreement. Full-scale testing of the TARGA II product from Koch Membrane Systems continued during the quarter.
- Periodic maintenance of the Lake Station screenings facility was completed.
- The 5-year regulatory inspection of the South (#1) Clearwell was completed with no major deficiencies identified. The inspection was performed without taking the Clearwell out of service by using a remotely operated vehicle (ROV) fitted with cameras.

Water Plant Projects

RUPIP: The Regulatory Upgrade and Process Improvement Project made the following major progress during the quarter:

- #4 High Density Lime System was installed and is undergoing testing.
- Major modifications to GAC Contactor #1-4 gulleets and associated appurtenances were completed.
- New “filter-to-waste” (FTW) piping, pumps, and control valves were installed to complete the conversion of the GAC Contactors to conventional, dual-media gravity filters.
- Major pipe modifications were completed in the south Lower Membrane Room to allow incorporation of two UV reactors and associated equipment.
- SCADA system software upgrades were installed.
- The Hach WIMS data management software was installed.

PAC Fire Suppression: The construction contract was awarded to Pieper Electric. Project kick-off is expected during the 4th quarter with completed construction targeted for the second quarter of 2015.

Distribution System Projects

Glendale Water Tower: A kick-off meeting was conducted by the design engineer to discuss project objectives and schedule. A preliminary design report will be submitted during the 4th quarter. Construction is expected to be complete in 2016.

Lindbergh Mixing Evaluation: Alternatives were presented by the consulting engineer. A recommendation will be submitted in the 4th quarter with procurement and installation expected in 2015.

#3 PRV: The new PRV station was installed and connected to the distribution system. Start-up and training will be completed during the 4th quarter.

Staffing & Training

- Staff completed General Employee and Annual city-wide Safety training.
- The Operations Supervisor attended annual Supervisor training.
- Several staff members completed technical training sessions to meet state certification requirements.