

Appleton Water Treatment Plant

Operations Synopsis

April, May, June 2015

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 significantly by about 11% consistent with increased seasonal demand. Average raw water turbidity also increased significantly coincident with seasonal conditions. The electrical energy “wire-to-water” ratio improved by about 2.8% over the previous quarter likely due to reduced recycle volumes. This quarterly improvement was limited by performance testing of the UV systems in June.

WATER PLANT PARAMETERS	Previous (Q1 2015)			Current (Q2 2015)		
	January	February	March	April	May	June
Water Treated						
Finished (million gallons)	258	234	262	264	286	284
Finished (million gallons / day)	8.3	8.4	8.4	8.8	9.2	9.5
Electrical Energy (WTF)						
Consumption (Megawatt-hours)	549.8	496.8	553.6	534.5	569.8	602.1
MWH / million gallons produced	2.13	2.12	2.12	2.07	1.99	2.12
Turbidity						
Lake (NTU)	2.5	2.1	4.6	12.3	10.5	15.9
Finished (NTU)	0.02	0.02	0.03	0.03	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 Required	1.0	1.0	1.0	1.0	1.0	1.0
Minimum CT Ratio Achieved	1.49	1.47	1.00	2.30	2.92	8.5
Hardness						
Lake Total / Calcium (mg/L)	199/111	205/103	220/119	200/109	201/113	196/106
Finished Total / Calcium (mg/L)	111/27	110/29	108/32	96/16	90/20	96/14
Finished Water Quality						
Total Chlorine (mg/L)	2.22	2.21	2.18	2.34	2.33	2.33
pH	8.6/8.9	8.6/8.9	8.8/9.1	8.6/9.0	8.5/9.0	8.5/8.8
Water Temperature (Degrees F)	33.6	34.2	37.2	45.1	61.2	69.4
Fluoride (mg/L)	0.78	0.72	0.64	0.62	0.72	0.75
Orthophosphate (mg/L)	0.84	0.64	0.66	0.74	0.75	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.
- The Technical Services Manager continued development of the Long Term 2 Enhanced Surface Water Treatment Rule (LT2) monitoring plan. Monitoring will commence in the fourth quarter of 2015 and continue monthly for 2 years.

Safety

- WTF Safety programs were maintained by completing scheduled safety meetings and all inspections. There were no significant incidents to report.
- North Shore Environmental Construction was contracted to provide rapid response and mercury clean-up services in the unlikely event of a UV Reactor lamp break.

Operations

- The cable stays supporting the sludge collector arms in #2 Softener failed from corrosion effects in May. Repairs were completed in June using stainless steel stay cables.
- #1 Softener cleaning was completed and the unit was placed back into service during the quarter.
- #4 Softener was removed from service and cleaning operations begun in preparation for mechanism recoating later in the year.
- #1 Sodium Hypochlorite bulk tank was removed from service, a horizontal access hatch was installed, and the interior veil was replaced during the month of June. The tank will be flushed and placed into service in July.
- Dual pressure relief valves were installed on each of the Carbon Dioxide bulk storage vessels in June bringing the units into compliance with industry standards. The Carbon Dioxide solution feeders were inspected and leaks were eliminated.
- On June 5, a malfunctioning air relief valve was identified and rapidly repaired by staff from the Utilities Department and the Department of Public Works. A minor release of lime sludge to the environment occurred.
- The annual inspection and calibration check of the sanitary sewer meter to the Waverly Sanitary District was completed on June 25 with stand-by rescue assistance from the Appleton Fire Department.

Water Plant Projects

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

- The High Density Lime Systems (1 & 2) were installed and functionally tested.
- Piping and valves to interconnect the North and South lime sludge pits were successfully installed in May.
- 30-day performance testing of the UV reactors was begun in June. The testing period will conclude in the third quarter.
- The majority of modifications to CT basins were completed during the quarter. #2 CT Basin was disinfected and placed into service. #1 CT Basin will be disinfected and placed into service in July.

PAC Fire Suppression: Construction activities have been completed and the system has been commissioned and training completed.

Distribution System Projects

Ridgeway Water Tower: The tower was removed from service, inspected and cleaned on June 11 in compliance with WDNR regulations.

Glendale Water Tower: The contract to construct the new tower was awarded to Caldwell Tanks of Louisville, KY. Construction is expected to be complete in 2016.

Lindbergh Mixer: The Gridbee mixer has been purchased and preliminary site work was completed during the quarter. The mixer installation will be completed by Utility Department staff in July.

Staffing & Training

- All Water Treatment Facility vacancies have been filled. Stephanie Lee completed IDOC for water laboratory testing during the quarter.
- Staff received operations and maintenance training for the PAC Fire Suppression System and UV Disinfection systems during the quarter.