

Appleton Water Treatment Plant Operations Synopsis April, May, June 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 was the same as the previous quarter due to relatively mild weather conditions. Average raw water turbidity increased modestly during the quarter as summer approached.

| WATER PLANT PARAMETERS | Previous (Q1) | | | Current (Q2) | | |
|---------------------------------------|---------------|----------|---------|--------------|---------|---------|
| | January | February | March | April | May | June |
| Water Treated | | | | | | |
| Finished (million gallons) | 263 | 255 | 281 | 252 | 282 | 277 |
| Finished (million gallons / day) | 8.5 | 9.1 | 9.1 | 8.4 | 9.1 | 9.2 |
| Electrical Energy (WTF) | | | | | | |
| Consumption (Megawatt-hours) | 557.3 | 524.9 | 570.9 | 514.4 | 560.3 | 587.9 |
| MWH / million gallons produced | 2.12 | 2.06 | 2.03 | 2.04 | 1.99 | 2.12 |
| Turbidity | | | | | | |
| Lake (NTU) | 3.2 | 4.2 | 4.9 | 9.0 | 8.6 | 19.7 |
| Finished (NTU) | 0.02 | 0.02 | 0.02 | 0.02 | 0.03 | 0.02 |
| Finished (<0.1 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 | 2.02 | 0.76 | 1.95 | 2.03 | 2.33 | 2.42 |
| Hardness | | | | | | |
| Lake Total / Calcium (mg/L) | 196/105 | 202/97 | 202/112 | 206/112 | 193/104 | 170/94 |
| Finished Total / Calcium (mg/L) | 98/39 | 103/36 | 102/32 | 104/31 | 89/21 | 86/16 |
| Finished Water Quality | | | | | | |
| Total Chlorine (mg/L) | 2.24 | 2.26 | 2.25 | 2.26 | 2.14 | 2.12 |
| pH | 8.8/8.9 | 8.7/9.4 | 8.9/9.1 | 8.4/9.1 | 8.2/9.1 | 8.2/9.1 |
| Water Temperature (Degrees F) | 35.6 | 35.6 | 37.2 | 40.6 | 56.1 | 71.4 |
| Fluoride (mg/L) | 0.66 | 0.65 | 0.63 | 0.72 | 0.73 | 0.73 |
| Orthophosphate (mg/L) | 0.71 | 0.56 | 0.69 | 0.70 | 0.68 | 0.81 |

Laboratory

- In support of plant operations, staff conducted successful analyses according to method protocols for all parameters including pH, turbidity, alkalinity, hardness, free and 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.

Safety

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

Operations

- Following RUIP modifications, #5-8 GAC Contactors (future gravity filters), and #1 Membrane Feed Wet Well were placed back into service. #3-4 GAC Contactors, the South (#2) CT Basin, and the North (#2) Clearwell were taken out of service for modifications.
- Full-scale testing of the TARGA II product from Koch Membrane Systems continued during the quarter. A third membrane stage was converted to the product for expanded testing.
- Plant staff dewatered, cleaned, and inspected the South Pretreatment Basin, the South Recarbonation Basin, and the South Contactor Influent Channel.
- In June, the bulk Carbon Dioxide storage vessels, solution feeders, and related systems were professionally inspected by the original manufacturer. Minor repairs were completed and significant upgrades identified to bring the units into conformance with current best safety practices. Upgrades will be completed during 2015.
- The 5-year regulatory inspection of the North (#2) Clearwell was completed with no major deficiencies identified.

Water Plant Projects

RUIP: The Regulatory Upgrade and Process Improvement Project (RUIP) made the following major progress during the quarter:

- The polymer diffuser was installed in the South Contactor Influent Channel.
- Modifications to GAC Contactor #5-8 gullets and associated appurtenances were completed.
- Modifications to #1 Membrane Wet Well were completed.
- Walls for the CT Basin extensions were poured and stainless steel baffles and access ladders were installed in #2 CT Basin.

PAC Fire Suppression: Review of final design documents was completed during the quarter. The construction contract is expected to be awarded by the end of the third quarter with construction complete by the end of the first quarter of 2015.

Staffing & Training

- The two newest staff successfully completed plant operations training.
- The Operations Supervisor attended the annual Treatment Operations Seminar in Oak Creek, WI.
- Several staff members attended off-site training sessions to meet state certification requirements.