

**Appleton Water Treatment Plant
Operations Synopsis
January, February, March 2014**

Summary

The following table summarizes selected water production and quality performance metrics for the current and previous reporting periods. During the quarter, average water production increased about 11% from the previous quarter. Average raw water turbidity declined significantly as winter temperatures and Lake Winnebago ice-over prevailed. In February, an existing lime feeder system “free flow” resulted in reduced CT ratio. As part of the RUIP, the new lime feeders and increased CT Basin capacity are expected to eliminate the likelihood of this circumstance in the future.

WATER PLANT PARAMETERS	Previous (Q4)			Current (Q1)		
	October	November	December	January	February	March
Water Treated						
Finished (million gallons)	259	235	249	263	255	281
Finished (million gallons / day)	8.3	7.8	8.0	8.5	9.1	9.1
Electrical Energy (WTF)						
Consumption (Megawatt-hours)	546.5	513.8	548.7	557.3	524.9	570.9
MWH / million gallons produced	2.11	2.18	2.20	2.12	2.06	2.03
Turbidity						
Lake (NTU)	48.4	48.9	9.6	3.2	4.2	4.9
Finished (NTU)	0.02	0.03	0.02	0.02	0.02	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	1.95	1.88	1.88	2.02	0.76	1.95
Hardness						
Lake Total / Calcium (mg/L)	176/94	180/84	194/103	196/105	202/97	202/112
Finished Total / Calcium (mg/L)	91/23	99/30	101/41	98/39	103/36	102/32
Finished Water Quality						
Total Chlorine (mg/L)	2.33	2.36	2.29	2.24	2.26	2.25
pH	8.7/9.1	8.8/9.2	8.7/9.0	8.8/8.9	8.7/9.4	8.9/9.1
Water Temperature (Degrees F)	57.4	40.8	34.7	35.6	35.6	37.2
Fluoride (mg/L)	0.82	0.75	0.78	0.66	0.65	0.63
Orthophosphate (mg/L)	0.70	0.64	0.72	0.71	0.56	0.69

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.

- A written response plan was prepared and accepted by the Department of Agriculture, Trade, and Consumer Protection (DATCP) in connection with the December 2013 audit of our laboratory procedures and equipment.
- The Technical Services Manager provided assistance to wholesale water customers in connection with quarterly Disinfection Byproduct sampling requirements.
- Analyses of double-blind proficiency samples were completed in support of laboratory re-certification.

Safety

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

Operations

- In support of RUIP construction activities, half of the GAC Contactors (future gravity filters), and #1 Membrane Feed Wet Well were taken out of service. These units are projected to be out-of-service until the end of May. Consequently, the normal “off-peak energy” backwashing schedule has been suspended limiting related potential electrical energy savings.
- Demonstration testing was conducted to evaluate and increase Softener performance in terms of effluent turbidity reduction. The testing confirmed that increased lime addition can reduce turbidity to future target levels.
- Full-scale testing of the TARGA II product from Koch Membrane Systems continued during the quarter. A second membrane stage was converted to the product for expanded testing.
- Plant staff dewatered, cleaned, and inspected #3 Softener, the South Softener Influent Channel, the Contactor Wash Water and the Membrane Wash Water Tanks.
- In March, the stand-by generators were successfully tested in accordance with the capacity agreement with WPPI.

Water Plant Projects

RUIP: The Regulatory Upgrade and Process Improvement Project (RUIP) entered the construction phase on January 23. Work completed during the quarter included:

- Contractor mobilization and staging
- Submittal review
- Membrane wet well concrete wall forms installed
- Filter gullet preparation for second concrete floor installation (#5-8)

PAC Fire Suppression: Design alternatives and equipment were reviewed with the design engineer during the quarter. Review of final design documents will be completed during the second quarter.

Staffing & Training

- The two newest staff successfully completed confined space entry certification.
- The plant design engineer provided plant operations “refresher” training for all plant staff.
- Several staff members attended off-site training sessions to meet state certification requirements.