

**Appleton Wastewater Treatment Plant
Operations Synopsis
January 2021 – March 2021**

Wastewater Treatment Program

- The Appleton Wastewater Treatment Plant (AWWTP) final effluent met Wisconsin Department of Natural Resources (WDNR) discharge monitoring reporting limits for carbonaceous biochemical oxygen demand (CBOD), total suspended solids (TSS), and phosphorous. The plant maintained good treatment and a healthy microbiological population with a sludge retention time of 9.0 days. Dewatering processes functioned well and converted 16.1 Million Gallons (MG) of primary digested sludge to biosolids.

Summary of Treatment

Parameter	January	February	March	Average
Industrial Flow (MG)	33.9	31.0	32.9	32.6
Domestic Flow (MG)	227.8	206.4	389.0	274.4
Total Flow (MG)	261.7	237.4	421.9	307.0
Influent CBOD Load (Avg Daily lbs)	23,357	24,330	21,000	22,896
Influent TSS Load (Avg Daily lbs)	42,016	46,463	40,521	43,000
Influent Phosphorous Load (Avg Daily lbs)	474	464	418	452
Influent Ammonia Load (Avg Daily lbs)	1,956	2,404	1,882	2,081
Effluent CBOD Load (Avg Daily lbs)	486	573	837	632
Effluent TSS Load (Avg Daily lbs)	161	420	473	351
Effluent Phosphorous Load (Avg Daily lbs)	19	24	24	22
Effluent Ammonia Load (Avg Daily lbs)	811	988	189	663
% Treatment Removal of CBOD	97.9	97.6	96.0	97.2
% Treatment Removal of TSS	99.6	99.1	98.8	99.2
% Treatment Removal of Phosphorous	96.0	94.8	94.3	95.0
% Treatment Removal of Ammonia	58.5	58.9	90.0	69.1

Work in Progress:

- 2017 Appleton Wastewater Plant Improvement Projects: (WAS Pumping System Replacement, High Pressure Blower #3 Replacement, Digester Biogas Mix Compressor Glycol Cooling System): All new equipment has been successfully installed and utilized since 2020. Final project completion will occur in next quarter with the satisfactory closeout of various punch list items.
- 2019 Appleton Wastewater Plant Improvement Projects: McMahon is under a professional engineering service contract for the multi-process improvements project. The project includes replacement of the Return Activated Sludge (RAS) pumps, process piping modifications (e.g. blended sludge, filtrate, waste gas flare), outside secondary chemical offloading containment repairs, primary clarifiers #5 & #6 drive replacements (2020 CIP), and H-Building effluent pump replacements (2020 CIP). Staab Construction (Staab) initiated construction activities in January 2021. Final project completion is scheduled for March 2022.
- Engineering Services RFP 2021 Appleton Wastewater Plant Sludge Storage Building Addition: During the 4th quarter of 2020 Requests for Proposals (RFP) were sent to four engineering firms as part of the 2021 Appleton Wastewater Plant Sludge Storage Building Addition. RFPs were submitted to the Utilities Department by each firm in early January

2021. Utilities Department staff evaluated and scored each proposal based on weighted criteria described in the RFP. The Applied Technologies, Inc. (ATI) proposal received the highest overall evaluation score by the review team and provided the greatest overall value using the point value calculation. Common Council approved contract award to ATI on February 3, 2021. ATI immediately initiated preliminary engineering services subsequent to contract execution. Engineering services to be delivered by ATI as part of the contract scope will provide a path forward to construct 5,000 cubic yards of additional biosolids storage capacity. The additional storage will address long time deficiencies associated with satisfying the Department of Natural Resources 180-day storage requirement which is based on annual production.

- Engineering Services RFP: 2021 Appleton Wastewater Plant Solids Dewatering Equipment Upgrades: During the 4th quarter of 2020 Requests for Proposals (RFP) were sent to four engineering firms as part of the 2021 Appleton Wastewater Plant Solids Dewatering Equipment Upgrades. RFPs were submitted to the Utilities Department by each firm in early January 2021. Utilities Department staff evaluated and scored each proposal based on weighted criteria described in the RFP. The McMahon Associates, Inc. (McMahon) proposal received the highest overall evaluation score by the review team and provided the greatest overall value using the point value calculation. Common Council approved contract award to McMahon on February 3, 2021. McMahon immediately initiated preliminary engineering services subsequent to contract execution. Engineering services to be delivered by McMahon as part of the contract scope will evaluate needs and the type of dewatering technology to be advanced as part of a 2022 construction project.

Regulatory Summary

- Monthly Discharge Monitoring reports for January, February, and March were filed electronically on time for regulatory compliance.
- Monthly average effluent ammonia limit of 10 mg/L was exceeded for January and February. This was a result of construction work as part of the 2019 Improvements Project, which called for modifications to belt filter press (BFP) filtrate piping to improve access and install new equipment. The BFP filtrate piping carries ammonia rich water from the de-watering process to the aeration tanks, in which the ammonia is removed. During construction, BFP filtrate was redirected to another location in the aeration process that's not as effective removing ammonia. The BFP filtrate piping was returned to service in late February, and effluent ammonia concentrations returned to compliance for March.

Laboratory

- All sampling and laboratory testing procedures were performed in accordance with requirements outlined in the AWWTP Wisconsin Pollutant Discharge Elimination System (WPDES) permit.
- Discharge Monitoring Report (DMR) and Health Department testing program objectives associated with sampling and analysis were met during the reporting period.
- Analysis of Double-Blind Proficiency samples for laboratory recertification occurred during the reporting period.
- Sampling of influent in support of Wisconsin State Lab of Hygiene COVID Sewage Surveillance continued during the reporting period.

Staffing & Training

- Staff continued COVID-19 adjustments to schedules and work areas, as well as virtual meetings which limit group sizes and face-to-face contact among employees.