

**Appleton Wastewater Treatment Plant
Operations Synopsis
April 2019 – June 2019**

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), phosphorous, and ammonia. The plant maintained good treatment and a healthy microbiological population with a sludge retention time of seven days. Dewatering processes functioned well and converted 18.2 Million Gallons (MG) of primary digested sludge to biosolids.

Summary of Treatment

Parameter	April	May	June	Average
Industrial Flow (MG)	53.7	53.3	56.4	54.5
Domestic Flow (MG)	501.1	496.3	361.4	452.9
Total Flow (MG)	554.8	549.6	417.8	507.4
Influent CBOD Load (Avg Daily lbs)	27,112	26,179	28,191	27,161
Influent TSS Load (Avg Daily lbs)	41,194	41,151	44,826	42,390
Influent Phosphorous Load (Avg Daily lbs)	496	474	469	480
Influent Ammonia Load (Avg Daily lbs)	2,108	1,897	2,162	2,056
Effluent CBOD Load (Avg Daily lbs)	1,160	828	464	817
Effluent TSS Load (Avg Daily lbs)	408	257	224	296
Effluent Phosphorous Load (Avg Daily lbs)	24	19	18	20
Effluent Ammonia Load (Avg Daily lbs)	714	464	171	450
% Treatment Removal of CBOD	95.7	96.8	98.4	97.0
% Treatment Removal of TSS	99.0	99.4	99.5	99.3
% Treatment Removal of Phosphorous	95.2	96.0	96.2	95.8
% Treatment Removal of Ammonia	66.1	75.5	92.1	77.9

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): The construction notice to proceed was authorized on March 4, 2019. Project contract final completion is dated May 26, 2020.
- **B-Building Biogas Boiler Project:** Work proceeded through the reporting period associated with the new high efficiency biogas (methane) boiler which will support the lower heating loop at the AWWTP. Work also included additional improvements that will complement both the new biogas boiler and existing biogas boilers (e.g. new biogas conveyance piping, gas mixing, gas compression system, and automated fuel controls). These aforementioned improvements are designed to optimize the use of two existing upper loop boilers in conjunction with the new lower loop boilers that will be fueled entirely on biogas from the anaerobic digesters.
- **Briarcliff and Midway Improvement Projects:** Project substantial completion was reached in late June with final completion expected before the end of July.
- **Compost Site Evaluation:** Work in progress on final draft report by Coker Composting and Consulting (Coker).
- **2019 Midway Road Lift Station Phase II Improvements Project:** McMahon is under an engineering services contract to provide design, bidding and construction phase services

as part of the second phase of the Midway Lift Station Improvements project. The project includes replacement of the existing pumps, deteriorated pump rails, and electrical control panel (nearly 30 years old). Public bidding for construction is anticipated to occur in late July.

- **2019 Appleton Wastewater Plant Improvement Projects:** McMahon was awarded the professional engineering service contract in May as part of the multi-process improvements project. The project includes replacement of the Return Activated Sludge (RAS) pumps, process piping modifications (e.g. blended sludge, waste gas, and filtrate), primary clarifier concrete recoating, and outside secondary containment repairs for iron salt chemical offloading. A kick-off meeting was held at the wastewater plant on June 19th to overview the various project elements leading into the preliminary engineering phase.

Regulatory Summary

- Monthly Discharge Monitoring reports for April, May, and June were filed electronically on time for regulatory compliance.

Laboratory

- All sampling and laboratory testing procedures were performed in accordance with requirements outlined in the AWWTP Wisconsin Pollutant Discharge Elimination System (WPDES) permit.
- Began Disinfection Season sampling and analysis.
- Discharge Monitoring Report (DMR) and Health Department testing program objectives associated with sampling and analysis were met during the reporting period.
- Successfully submitted monthly DMR reports for April, May June.
- During the period conducted analysis of proficiency samples required for laboratory recertification under Wisconsin Administrative Code NR 149.
- Began the training of newly hired staff with laboratory duties.

Staffing & Training

- All staff completed Utilities Department Safety training requirements for the year.
- The AWWTP hired three Liquids Operators during the reporting period. Welcome aboard, Emily Herder, Anthony Rottier, and Elizabeth Martin!

EFFLUENT QUALITY SUMMARY
January 2018/2019 – June 2018/2019

Table 1 – 2018 Monthly Permit Summary

Month	CBOD (mg/L)	TSS (mg/L)	TSS (lbs/day)	P (mg/L)	P (lbs/day)	NH3-N ⁽¹⁾ (mg/L)	Fecal ⁽²⁾ Coliform Colonies/ (100 ml)	Chlorine ⁽²⁾ Residual (mg/L)	pH (s.u.)
<i>Permit Limit</i>	25	30	1,322 ⁽³⁾	1	23 ⁽³⁾	10, 11, 4.4, 18	400 col/100ml Geo.Mean	0.038 mg/L daily	6.0 - 9.0 daily limit
January 2018	8	4	331	0.16	12.4	2.82	NA	NA	7.0/7.3
February 2018	6	4	337	0.31	26.0	3.47	NA	NA	7.0/7.3
March 2018	6	2	211	0.39	34.6	4.63	NA	NA	7.2/7.5
April 2018	5	4	598	0.42	62.0	5.60	NA	NA	7.5/7.6
May 2018	4	1	205	0.38	59.0	2.11	5	<0.032	7.4/7.7
June 2018	4	3	302	0.47	46.0	1.04	6	<0.032	7.2/7.6

Table 2 – 2018/2019 Monthly Permit Summary

Month	CBOD (mg/L)	TSS (mg/L)	TSS (lbs/day)	P (mg/L)	P (lbs/day)	NH3-N ⁽¹⁾ (mg/L)	Fecal ⁽²⁾ Coliform Colonies/ (100 ml)	Chlorine ⁽²⁾ Residual (mg/L)	pH (s.u.)
January 2019	8	5	480.00	0.23	24.0	1.37	NA	NA	6.8/7.1
February 2019	10	16	1,253.00	0.46	35.0	3.58	NA	NA	6.8/7.2
March 2019	13	6	1,169.00	0.25	38.0	11.12 ⁽⁴⁾	NA	NA	7.0/7.4
April 2019	7	3	408.00	0.16	24.0	5.11	NA	NA	7.1/8.1
May 2019	5	2	257.00	0.13	19.0	2.88	5	<0.032	6.9/7.2
June 2019	4	2	224.00	0.15	18.0	1.46	3	<0.032	6.7/7.1

NOTES:

- 1) Seasonal NH3-N limits: 10 mg/L Jan. 1 – Mar. 31, 11 mg/L Apr. 1 – May 31, 4.4 mg/L June 1 – Sep 30, 18 mg/L Oct 1 – Dec 31.
- 2) Seasonal fecal and residual chlorine limits are in effect May 1st through September 30th. Limit of Detection 0.032 mg/L.
- 3) April 1, 2017 WPDES Reissuance with new TSS limits expressed as monthly concentration limit (mg/L) and loading limit (lbs). The future TMDL phosphorus limit will be 23 lbs/day expressed as a 6-month average.
- 4) Effluent ammonia monthly average limit of 10 mg/l was exceeded in March with an average concentration of 11.12 mg/l reported. A temporary shutdown of the BFP filtrate line was required in March to facilitate piping modifications and maintenance activities.

YEAR 2019 RECEIVING STATION REVENUE

Hauler	January	February	March	April	May	June	July	August	September	October	November	December	Y-T-D Total
A & B Leist Trucking	\$ 192,964.32	\$ 171,666.63	\$ 206,654.56	\$ 205,765.77	\$ 218,421.63	\$ 213,640.81							\$ 1,209,113.72
Dean Foods	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -							\$ -
Hickory Meadows	\$ 38,366.69	\$ 36,715.45	\$ 55,880.13	\$ 39,309.71	\$ 42,620.93	\$ 31,540.84							\$ 244,433.75
Holland Sanitary Dist. 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -							\$ -
Jeff Waldvogel Trkg.	\$ 37,371.58	\$ 30,251.53	\$ 36,648.35	\$ 53,986.57	\$ 64,742.30	\$ 64,710.94							\$ 287,711.27
Movin Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -							\$ -
Waldvogel Trucking	\$ 2,514.92	\$ 1,833.16	\$ 2,605.28	\$ 2,063.25	\$ 1,994.54	\$ 1,964.68							\$ 12,975.83
2019 Total	\$ 271,217.51	\$ 240,466.77	\$ 301,788.32	\$ 301,125.30	\$ 327,779.40	\$ 311,857.27	\$ 322,323.96	\$ 276,553.18	\$ 328,181.16	\$ 302,376.00	\$ 274,097.90	\$ 258,720.18	\$ 1,754,234.57
2018 Total	\$ 230,054.73	\$ 225,457.71	\$ 278,712.95	\$ 330,081.94	\$ 416,028.68	\$ 333,628.29	\$ 322,323.96	\$ 276,553.18	\$ 328,181.16	\$ 302,376.00	\$ 274,097.90	\$ 258,720.18	\$ 3,576,216.68

Holland Sanitary District 1 new customer in March 2018

Dean Foods new customer in April 2018

3% Rate Increase effective 1/1/18

1% Rate Increase effective 1/1/19

Effective 5/1/19 Dean Foods is billed with Jeff Waldvogel Trucking

Date: July 17, 2019

Copies: K. Rindt (via email)

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Utilities Committee