

**Appleton Wastewater Treatment Plant
Operations Synopsis
July 2019 – September 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 19.1 Million Gallons (MG) of primary digested sludge to biosolids.

Summary of Treatment

Parameter	July	August	September	Average
Industrial Flow (MG)	49.9	39.6	38.0	42.5
Domestic Flow (MG)	297.2	242.3	397.0	312.2
Total Flow (MG)	347.0	281.9	435.0	354.6
Influent CBOD Load (Avg Daily lbs)	26,695	25,185	25,485	25,788
Influent TSS Load (Avg Daily lbs)	46,113	44,956	41,918	44,329
Influent Phosphorous Load (Avg Daily lbs)	447	417	472	445
Influent Ammonia Load (Avg Daily lbs)	1,767	2,043	2,111	1,974
Effluent CBOD Load (Avg Daily lbs)	500	304	712	505
Effluent TSS Load (Avg Daily lbs)	151	98	525	258
Effluent Phosphorous Load (Avg Daily lbs)	13	14	20	16
Effluent Ammonia Load (Avg Daily lbs)	173	137	317	209
% Treatment Removal of CBOD	98.1	98.8	97.2	98.0
% Treatment Removal of TSS	99.7	99.8	98.7	99.4
% Treatment Removal of Phosphorous	97.1	96.6	95.8	96.5
% Treatment Removal of Ammonia	90.2	93.3	85.0	89.5

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. Construction activities remained ongoing through the reporting period. Project completion is anticipated in May 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. Project completion is anticipated in late October.
- **Briarcliff and Midway Improvement Projects:** Project completion was reached in late July.

- **Compost Site Evaluation:** Work remains 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 was to occur in August.
- **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. McMahon continued preliminary engineering phase efforts during the reporting period.

Regulatory Summary

- Monthly Discharge Monitoring reports for July, August, and September 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 including those associated with the Health Department pool testing program.
- Successfully submitted monthly eDMR report forms for July through September 2019
- Analysis of Single Blind Proficiency samples for laboratory recertification
- Seasonal disinfection testing completed September 30, 2019

Staffing & Training

- All staff completed Utilities Department Safety training requirements for the year.

EFFLUENT QUALITY SUMMARY
July 2018/2019 – September 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
April 2018	5	4	598	0.42	62	5.60	NA	NA	7.5/7.6
May 2018	4	1	205	0.38	59	2.11	5	<0.032	7.4/7.7
June 2018	4	3	302	0.47	46	1.04	6	<0.032	7.2/7.6
July 2018	5	5	354	0.61	41	0.77	11	<0.032	7.4/7.6
August 2018	6	4	375	0.64	51	1.40	56	<0.032	7.4/7.6
September 2018	6	4	940	0.56	71	1.49	10	<0.032	7.4/7.6

Table 2 – 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.)
April 2019	7	3	408	0.16	24	5.11	NA	NA	7.1/8.1
May 2019	5	2	257	0.13	19	2.88	5	<0.032	6.9/7.2
June 2019	4	2	224	0.15	18	1.46	3	<0.032	6.7/7.1
July 2019	5	2	150	0.14	13	1.85	4	<0.032	6.8/7.1
August 2019	4	1	98	0.17	14	1.60	10	<0.032	6.8/7.2
September 2019	5	3	525	0.17	21	2.33	53	<0.032	7.1/7.3

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.

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	\$ 236,349.22	\$ 220,225.61	\$ 196,456.10				\$ 1,862,144.65
Dean Foods	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -
Hickory Meadows	\$ 38,366.69	\$ 36,715.45	\$ 55,880.13	\$ 39,309.71	\$ 42,620.93	\$ 31,540.84	\$ 53,873.47	\$ 41,672.91	\$ 51,091.30				\$ 391,071.43
Holland Sanitary Dist 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -
Jeff Waldvogel Trke	\$ 37,371.58	\$ 30,251.53	\$ 36,648.35	\$ 53,986.57	\$ 64,742.30	\$ 64,710.94	\$ 62,729.49	\$ 64,386.37	\$ 58,137.82				\$ 472,964.95
Movin Materials	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -
Waldvogel Trucking	\$ 2,514.92	\$ 1,833.16	\$ 2,605.28	\$ 2,063.25	\$ 1,994.54	\$ 1,964.68	\$ 2,045.01	\$ 2,187.28	\$ 2,105.35				\$ 19,313.47
2019 Total	\$ 271,217.51	\$ 240,466.77	\$ 301,788.32	\$ 301,125.30	\$ 327,779.40	\$ 311,837.27	\$ 354,997.19	\$ 328,472.17	\$ 307,790.57	\$ -	\$ -	\$ -	\$ 2,745,494.50
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: October 16, 2019
Copies: K. Rindt (via email)
C. Shaw (via email)
B. Kreski
Utilities Committee