

**Appleton Wastewater Treatment Plant
Synopsis
July 2017 - September 2017**

Wastewater Treatment Program

- The Appleton Wastewater Treatment Plant (AWWTP) final effluent met all Wisconsin Department of Natural Resources (WDNR) discharge monitoring reporting limits including carbonaceous biochemical oxygen demand (CBOD), total suspended solids (TSS), pH, phosphorous, and ammonia. (See Table 1). The plant maintained good treatment and a healthy microbiological population with a sludge retention time of seven and one half days. Dewatering processes functioned well and converted 14.7 Million Gallons (MG) of primary digested sludge to biosolids.

July 2017			
AWWTP Flows (MG)	Influent	Effluent	Percent
Industrial Flow	47.5		13.1%
Domestic Flow	314.9		86.9%
Total Flow	362.4		
Pollutant Loadings (lbs)	Influent	Effluent	Removal
CBOD	979,326	10,139	99.0%
TSS	1,594,591	7,160	99.6%
Phosphorous	18,370	490	97.3%
Ammonia	58,179	3,415	94.1%
August 2017			
Industrial Flow	54.8		17.2%
Domestic Flow	263.7		82.8%
Total Flow	318.5		
Pollutant Loadings (lbs)	Influent	Effluent	Removal
CBOD	825,173	11,364	98.6%
TSS	1,572,743	9,819	99.4%
Phosphorous	17,985	710	96.1%
Ammonia	64,270	3,119	95.1%
September 2017			
Industrial Flow	54.9		18.6%
Domestic Flow	240.8		81.4%
Total Flow	295.7		
Pollutant Loadings (lbs)	Influent	Effluent	Removal
CBOD	820,669	10,393	98.7%
TSS	1,392,740	8,524	99.4%
Phosphorous	17,549	761	95.7%
Ammonia	62,290	1,830	97.1%

Work in Progress:

- **2017 Appleton Wastewater Plant Improvements Project:** This project is comprised of four individual capital improvement projects which includes WAS Pumping System Replacement, High Pressure Blower #3 Replacement, Digester Biogas Mix Compressor Glycol Cooling System, and

Final Effluent Firm Pump Capacity Improvements. Donohue & Associates conducted a mid-course project meeting at the WWTP on July 26th to overview questions and findings with the preliminary Conditions Assessment and Project Alternatives. A draft technical memorandum (TM) was subsequently submitted for review. Based on meeting discussions and preliminary TM findings the Utility requested that Donohue stop work on the Final Effluent Firm Pump Capacity Improvements task. Estimated construction costs were more than double the original budget as a result of existing space constraints at the back of the plant including electrical distribution which would require upsizing to facilitate additional or larger pumps. Furthermore, questions arose regarding upstream hydraulic restrictions which necessitated a closer evaluation before the Utility could cost justify a construction project of this nature. A contract amendment with Donohue was advanced in September to account for this change including a contract to conduct an updated hydraulic analysis (*may also reference October 3, 2017 Utilities Informational Memorandum for additional details*).

- **Chemical Storage Room Rehab/Improvements Project:** McMahon conducted a 90% design meeting on August 28th to overview drawings and specifications with AWWTP staff. Public bidding documents are to be finalized and released in the next quarter.
- **Biogas Utilization Study Update: Donohue:** Donohue & Associates conducted a mid-course project meeting at the AWWTP on July 26th to overview preliminary findings associated with the updated biogas utilization study. A draft Digester Gas Utilization Report was submitted by Donohue on August 16th to the AWWTP for review and comment. A short list of next steps was identified based on the draft report and subsequent discussions with Donohue that included conducting updated biogas baseline testing and inspection of the existing Hurst biogas boilers by the original equipment manufacturer representative. This information will be utilized to determine if alternative operational set points or operational strategies under lower gas quality conditions are available for the existing boilers. It will also be used in part to appropriately evaluate the other alternatives listed within the Digester Gas Utilization Report. The final report is tentatively expected in late December or January 2018.
- **Spartan Drive Lift Station:** The AWWTP is supporting the Department of Public Works as part of the new Spartan Drive lift station construction project. Construction activities are ongoing. Applied Technologies, contracted engineer, completed a preliminary walk-through intended to identify punch-list items ahead of the WE Energies electrical service installation (anticipated to occur in late October). Equipment start-up activities will commence following electrical service installation with final completion not anticipated to occur until sometime late in the next quarter.

Regulatory Summary

- Monthly Discharge Monitoring reports for July, August and September were filed electronically on time for regulatory compliance. The 2017 3rd quarter short form was also submitted.

Laboratory Program

- Program objectives for regulatory and process sampling and analysis were met including results for the Discharge Monitoring Report (DMR) and Health Department pool testing program.
- Lab personnel completed the analysis of Single Blind Proficiency samples for laboratory recertification.

- Lab staff will be conducting compliance monitoring sampling and pretreatment monitoring sampling to comply with 2017 requirements. They also successfully assisted operations staff during the disinfection season which ended on September 30th.

EFFLUENT QUALITY SUMMARY
April - September 2016/2017

Table 1 – 2016 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 Coliform Colonies/ (100 ml)	Chlorine ⁽²⁾ Residual (mg/L)	pH (s.u.)
<i>Permit Limit</i>	25	30	1,322 ⁽³⁾	1.0	23 ⁽³⁾	10, 11, 4.4, 18	400 col/100ml Geo.Mean	0.038 mg/L daily	6.0 - 9.0 daily limit
April ⁽³⁾	2	1	165	0.10	12.9	0.32	NA	NA	7.4/7.6
May	4	2	205	0.27	26.0	0.66	2	<0.01	7.0/7.4
June	3	2	211	0.28	31.8	0.75	10	<0.01	7.0/7.4
July	4	3	245	0.39	33.8	0.74	7	<0.01	7.0/7.2
August	4	3	196	0.42	31.7	1.92	3	<0.01	7.0/7.2
September	4	2	229	0.28	27.7	1.51	15	<0.01	6.8/6.9

Table 2 – 2017 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 Coliform Colonies/ (100 ml)	Chlorine ⁽²⁾ Residual (mg/L)	pH (s.u.)
April ⁽³⁾	2	1	470	0.09	15.8	1.48	NA	NA	7.2/7.3
May	4	2	388	0.12	15.6	1.43	2	<0.01	6.9/8.1
June	3	2	257	0.13	15.5	1.25	10	<0.01	7.1/7.9
July	3	2	231	0.17	15.8	1.10	19	<0.01	7.1/7.4
August	4	4	317	0.26	22.9	1.14	9	<0.01	7.1/7.4
September	4	3	284	0.30	25.4	0.66	23	<0.01	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 Sep 30 – Sep 30, 18 mg/L Oct 1 – Dec 31.
- 2) Seasonal fecal and residual chlorine limits are in effect May 1st through September 30th. * April 1, 2017 WPDES Reissuance with new TSS limits expressed as monthly concentration limit (mg/L) and loading limit (lbs).
- 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 2017 RECEIVING STATION REVENUE

Hauler	January	February	March	April	May	June	July	August	September	October	November	December	Y-T-D Total
A. & B Leist Trucking	\$ 118,361.74	\$128,962.99	\$ 159,597.37	\$ 162,154.77	\$ 149,221.72	\$173,976.28	\$ 166,571.15	\$ 131,635.84	\$139,721.87				\$ 1,330,203.73
Hickory Meadows	\$ 27,521.03	\$ 19,802.84	\$ 26,208.74	\$ 24,713.06	\$ 34,503.32	\$ 50,488.94	\$ 27,292.89	\$ 30,661.10	\$ 35,120.72				\$ 276,312.64
Jeff Waldvogel Trkg.	\$ 24,968.84	\$ 33,040.15	\$ 34,780.25	\$ 36,016.73	\$ 41,377.45	\$ 46,962.54	\$ 48,136.60	\$ 49,779.37	\$ 45,571.70				\$ 360,633.63
Movin Materials	\$ -	\$ -	\$ -	\$ 6,331.87	\$ -	\$ -	\$ -	\$ -	\$ -				\$ 6,331.87
Waldvogel Trucking	\$ 1,883.47	\$ 2,670.05	\$ 3,031.98	\$ 2,670.27	\$ 2,286.58	\$ 2,081.96	\$ 2,133.64	\$ 2,248.62	\$ 2,067.80				\$ 21,074.37
2017 Total	\$ 172,735.08	\$184,476.03	\$ 223,618.34	\$ 231,886.70	\$ 227,389.07	\$ 273,509.72	\$ 244,134.28	\$ 214,324.93	\$222,482.09	\$ -	\$ -	\$ -	\$ 1,994,556.24
2016 Total	\$172,642.52	\$174,844.28	\$214,615.28	\$194,073.19	\$147,993.22	\$166,671.53	\$177,531.77	\$179,398.93	\$213,707.36	\$178,214.32	\$184,882.22	\$ 156,865.52	\$ 2,161,440.14

*Movin Materials new hauler in April 2017

Date: October 12, 2017
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