

Appleton Wastewater Treatment Plant
Synopsis
April 2017 - June 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 14.4 Million Gallons (MG) of primary digested sludge to biosolids.

April 2017			
AWWTP Flows (MG)	Influent	Effluent	Percent
Industrial Flow	51.6		8.7%
Domestic Flow	544.2		91.3%
Total Flow	595.8		
Pollutant Loadings (lbs)	Influent	Effluent	Removal
CBOD	928,975	16,285	98.3%
TSS	1,459,429	14,090	99.0%
Phosphorous	13,483	473	96.5%
Ammonia	54,715	7,763	85.8%
May 2017			
Industrial Flow	53.2		11.0%
Domestic Flow	428.5		89.0%
Total Flow	481.7		
Pollutant Loadings (lbs)	Influent	Effluent	Removal
CBOD	826,671	14,190	98.3%
TSS	1,542,988	12,033	99.2%
Phosphorous	13,629	482	96.4%
Ammonia	63,662	5,433	91.5%
June 2017			
Industrial Flow	51.9		12.0%
Domestic Flow	379.8		88.0%
Total Flow	431.7		
Pollutant Loadings (lbs)	Influent	Effluent	Removal
CBOD	898,830	10,670	98.8%
TSS	1,653,194	7,724	99.5%
Phosphorous	16,364	464	97.1%
Ammonia	58,090	4,456	92.3%

Work in Progress:

- 2017 Appleton Wastewater Plant Improvements Project:** Donohue & Associates as awarded the professional engineering service contract in May as part of the multi-process improvements project. A kick-off meeting was held at the wastewater plant on June 6th to overview

final effluent pumping, waste activated sludge pumping, anaerobic digester mixing compressor glycol system, and aeration blower (No.3) replacement. Staff also provided responses to data and information requests that will be necessary for preliminary engineering phases.

- **Chemical Storage Room Rehab/Improvements Project:** McMahon conducted a pre-design kick-off meeting during the quarter to overview the project and solicit input from AWWTP staff which will be used as part of the preliminary design concepts. The acid containment pit liner was cleaned and inspected in May and found in good overall condition. Those findings are to be included in a conditions assessment and project alternatives technical memorandum. A 90% design meeting has been planned for later this summer with project bidding projected to occur in September.
- **Biogas Utilization Study Update: Donohue:** Donohue & Associates was awarded the professional engineering contract to update eight gas utilization alternatives that were evaluated as part of the original 2009 gas utilization study. The update will account for the increased biogas production associated with larger quantities of high strength wastes. Donohue will also be investigating the applicability of the Renewable Fuel Standard Program (RFSP) as part of the updated study. The final report will be completed by year end.
- **Spartan Drive Lift Station:** The AWWTP is supporting the Department of Public Works as part of the new Spartan Drive lift station construction project. Applied Technologies is the contracted engineer and August Winter and Sons the general contractor. Active construction of the lift station building including associated mechanical and electrical have been ongoing since May. Lift station start-up is projected to occur in September.

Regulatory Summary

- Monthly Discharge Monitoring reports for April, May and June were filed electronically on time for regulatory compliance. The 2017^{2nd} quarter short form was also submitted.
- The AWWTP operating permit was re-issued by the State of Wisconsin Department of Natural Resources with an effective date of April 1, 2017 and an expiration date of March 31, 2022. Staff are in the process of updating internal compliance monitoring and testing requirements including regulatory reporting schedules to align with those outlined in the re-issued permit. Noteworthy additions to the re-issued permit include the phosphorus Total Maximum daily Load (TMDL) water quality based effluent limitation compliance schedule (ultimate compliance date set for January 1, 2023) and the addition of the biosolids compost outfall.

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 will also aid operations staff in preparing for chlorine residual testing during the disinfection season.

EFFLUENT QUALITY SUMMARY

January - June 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 <i>col/100ml Geo.Mean</i>	0.038 <i>mg/L daily</i>	6.0 - 9.0 <i>daily limit</i>
January	2	2	235	0.16	17.2	0.24	NA	NA	7.1/7.4
February	3	4	461	0.20	20.5	0.95	NA	NA	6.9/7.2
March	3	2	389	0.12	23.1	0.86	NA	NA	7.2/7.4
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

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.)
January	4	3	338	0.23	26.2	2.28	NA	NA	7.1/7.3
February	4	2	220	0.17	17.6	1.14	NA	NA	7.1/7.3
March	3	1	151	0.06	9.8	1.58	NA	NA	7.1/7.3
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

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.
- 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 Leisr Trucking	\$ 118,361.74	\$128,962.99	\$ 159,597.37	\$ 162,154.77	\$ 149,221.72	\$ 173,976.28							\$ 892,274.87
Hickory Meadows	\$ 27,521.03	\$ 19,802.84	\$ 26,208.74	\$ 24,713.06	\$ 34,503.32	\$ 50,488.94							\$ 183,237.93
Jeff Waldvogel Trkg.	\$ 24,968.84	\$ 33,040.15	\$ 34,780.25	\$ 36,016.73	\$ 41,377.45	\$ 46,962.54							\$ 217,145.96
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							\$ 14,624.31
2017 Total	\$ 172,735.08	\$184,476.03	\$ 223,618.34	\$ 231,886.70	\$ 227,389.07	\$ 273,509.72	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,313,614.94
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: July 19, 2017
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Utilities Committee