

Appleton Wastewater Treatment Plant
Synopsis
January 2016 - March 2016

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 eight days. Dewatering processes functioned well and converted 13.47 Million Gallons (MG) of primary digested sludge to biosolids.

Table 1 – Wastewater Influent / Effluent Treatment Data

Characteristic	January 2016			February 2016			March 2016		
	Influent	Effluent	Percent	Influent	Effluent	Percent	Influent	Effluent	Percent
AWWTP Flows (MG)									
Industrial Flow	57.5		13.9%	53.7		14.7%	55.6		8.4%
Domestic Flow	355.5		86.1%	311.1		85.3%	606.7		91.6%
Total Flow	413.0			364.8			662.3		
Pollutant Loadings (lbs)	Influent	Effluent	Removal	Influent	Effluent	Removal	Influent	Effluent	Removal
CBOD	830,360	5,067	99.4%	810,788	10,093	98.8%	957,756	15,392	98.4%
TSS	1,396,457	7,298	99.5%	1,432,875	13,373	99.1%	1,486,378	12,053	99.2%
Phosphorous	14,718	534	96.4%	14,846	593	96.0%	15,632	693	95.6%
Ammonia	59,523	780	98.7%	56,655	2,986	94.7%	49,713	5,269	89.4%

Work Completed:

- 26,730 gallons of spent sulfuric acid (i.e. ferrous sulfate) was used for phosphorus removal during the reporting period. The chemical cost savings for using ferrous sulfate was approximately \$19,250. As part of the Phosphorous Treatment Optimization study, 10,725 gallons of ferric chloride was purchased and fed at a cost \$7,720 in an effort to evaluate chemical removal strategies.
- Monthly effluent ammonia removal averaged 94.3% through the three month period. The plant average effluent concentration for the three month period was 0.68 mg/L. This is in compliance with the ammonia limit for the time period.

Work in Progress:

- Digester Improvements Project:** A pre-bid meeting for prospective contractors was held in early January. AWWTP staff and McMahon engineers reviewed the resultant bids and selected August Winter and Sons as the general contractor for the job. A pre-construction meeting was held in early March, and work was started in April.
- Midway Road Lift Station Improvements Project:** This project has been delayed for a year due to location concerns for a new auxiliary power generator. It is anticipated that further studies will be conducted to arrive at a suitable generator location, and the project will move forward in 2017.

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- **Scarlet Oak Lift Station Improvement Project:** The project improvements work was publically bid in March and awarded to August Winter and Sons in early April. Work to commence in late April or early May following contract execution.

Regulatory Summary

- Monthly Discharge Monitoring reports for January, February and March were filed electronically on time for regulatory compliance. The 2016 1st 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 double blind Proficiency samples for laboratory recertification.
- Lab staff will be conducting compliance monitoring sampling and pretreatment monitoring sampling to comply with 2016 requirements. They will also aid operations staff in preparing for chlorine residual testing during the upcoming disinfection season.
- Lab and operations staff successfully completed sample collection events for Whole Effluent Toxicity (WET) testing. Staff is also involved in pretreatment monitoring and WPDES permit renewal sampling and testing.

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EFFLUENT QUALITY SUMMARY

January 2015 – March 2016

<i>Effluent Parameter:</i>	<i>CBOD mg/L</i>	<i>TSS mg/L</i>	<i>Total Phosphorus mg/L</i>	<i>Ammonia-Nitrogen mg/L</i>	<i>Chlorine Residual mg/L</i>	<i>Fecal Coliform Colonies/100 ml</i>	<i>pH s.u.</i>
<i>WPDES LIMITS:</i>	<i>25 mg/L monthly avg.</i>	<i>30 mg/L monthly avg.</i>	<i>1 mg/L monthly avg.</i>	<i>10 mg/L monthly avg.</i>	<i>0.037 mg/L daily limit</i>	<i>400 col/100ml geom. mean</i>	<i>6.0 - 9.0 daily limit</i>

2015

January	5	5	0.35	5.25	NA	NA	7.0/7.2
February	3	4	0.25	0.90	NA	NA	7.2/7.3
March	4	3	0.18	1.02	NA	NA	7.1/7.3
April	3	4	0.11	0.51	NA	NA	7.0/7.2
May	3	2	0.19	0.31	<0.01	11	7.1/7.4
June	3	2	0.15	0.42	<0.01	17	7.1/7.6
July	3	2	0.26	0.20	<0.01	10	6.8/7.2
August	3	2	0.56	0.49	<0.01	12	7.0/7.4
September	3	2	0.33	0.69	<0.01	37	7.0/7.3
October	6	6	0.53	0.95	NA	NA	7.1/7.2
November	2	3	0.45	0.21	NA	NA	7.2/7.3
December	4	7	0.26	0.97	NA	NA	7.1/7.1

2016

January	2	2	0.16	0.24	NA	NA	7.1/7.4
February	3	4	0.20	0.95	NA	NA	6.9/7.2
March	3	2	0.12	0.86	NA	NA	7.2/7.4

YEAR 2016 RECEIVING STATION REVENUE

Hauler	January	February	March	April	May	June	July	August	September	October	November	December	Y-T-D Total
A & B Leist Trucking	\$ 118,437.13	\$124,789.23	\$ 140,298.77										\$ 383,525.13
Hickory Meadows	\$ 25,223.73	\$ 21,173.99	\$ 33,817.04										\$ 80,214.76
Jeff Waldvogel Trkg.	\$ 26,878.60	\$ 25,936.68	\$ 28,830.91										\$ 81,646.19
Waldvogel Trucking	\$ 2,103.06	\$ 2,944.38	\$ 2,743.41										\$ 7,790.85
2016 Total	\$ 172,642.52	\$174,844.28	\$ 205,690.13	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 553,176.93
2015 Total *	\$74,477.92	\$59,745.63	\$115,103.25	\$125,573.11	\$116,373.53	\$145,077.58	\$87,128.58	\$147,240.34	\$139,098.92	\$106,381.19	\$141,165.31	\$ 209,311.16	\$ 1,466,676.52

* Tier Rate Structure increase effective July 1, 2015.

Date: April 13, 2016
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 Utilities Committee