

Appleton Wastewater Treatment Plant
Synopsis
October 2016 - December 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 12.10 Million Gallons (MG) of primary digested sludge to biosolids.

Table 1 – Wastewater Influent / Effluent Treatment Data

Characteristic	October 2016			November 2016			December 2016		
	Influent		Percent	Influent		Percent	Influent		Percent
AWWTP Flows (MG)									
Industrial Flow	44.3		13.4%	47.3		15.5%	55.2		14.3%
Domestic Flow	287.0		86.6%	257.5		84.5%	330.3		85.7%
Total Flow	331.3			304.8			385.5		
Pollutant Loadings (lbs)	Influent	Effluent	Removal	Influent	Effluent	Removal	Influent	Effluent	Removal
CBOD	912,417	13,458	98.5%	838,619	11,754	98.6%	926,337	11,237	98.8%
TSS	1,569,236	10,602	99.3%	1,335,749	13,420	99.0%	1,441,517	12,573	99.1%
Phosphorous	17,742	1,934	89.1%	14,721	1,077	92.7%	16,211	866	94.7%
Ammonia	67,666	9,821	85.5%	66,492	4,212	93.7%	59,541	2,136	96.4%

Work Completed:

- 41,935 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 \$30,190. As part of the Phosphorous Treatment Optimization study, 17,390 gallons of ferric chloride was purchased and fed at a cost \$12,520 in an effort to evaluate chemical removal strategies.
- Monthly effluent ammonia removal averaged 91.9% through the three month period. The plant average effluent concentration for the three month period was 1.86 mg/L. This is in compliance with the ammonia limit for the time period.

Work in Progress:

- “D” Building Renovation project:** A pre-construction meeting was held on October 24th. Representatives from the engineering firm Mc Mahon, and the contractor, Cardinal Construction, were in attendance along with staff from the AWWTP and Facilities. Demolition and asbestos removal were accomplished in December. Construction is expected to last through March of 2017.

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Regulatory Summary

- Monthly Discharge Monitoring reports for October, November, and December were filed electronically on time for regulatory compliance. The 2016 4th quarter short form was also submitted.
- Plant management staff was informed by Wisconsin Department of Natural Resources (WDNR) personnel that implementation of the renewed Wisconsin Pollution Discharge Elimination System (WPDES) discharge permit for the AWWTP would be delayed due to the multi-discharger variance review by the USEPA. A prospective date of April 1, 2017 was given as a target for implementation of the renewed permit.

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 efforts included second – half compliance monitoring sampling and pretreatment monitoring sampling to comply with 2016 requirements.
- Lab and operations staff are working cooperatively to implement a new probe for BOD analysis, and are undertaking a review of Phosphorus testing methods.
- Completed Fox River Flow and Temperature Monitoring for the Waste Load Allocation (WLA) season.

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EFFLUENT QUALITY SUMMARY

October 2015 – December 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

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
April	2	1	0.10	0.32	NA	NA	7.4/7.6
May	4	2	0.27	0.66	<0.01	2	7.0/7.4
June	3	2	0.28	0.75	<0.01	10	7.0/7.4
July	4	3	0.23	0.74	<0.01	7	6.8/7.1
August	4	3	0.18	1.92	<0.01	3	6.8/7.1
September	4	2	0.28	1.51	<0.01	15	6.7/6.9
October	5	4	0.70	3.54	NA	NA	6.5/6.9
November	5	5	0.42	1.45	NA	NA	6.5/6.8
December	3	4	0.27	0.59	NA	NA	7.0/7.1

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	\$ 138,987.23	\$ 104,492.67	\$114,404.27	\$ 120,421.09	\$ 109,336.22	\$133,757.34	\$122,981.32	\$ 125,495.59	\$ 114,161.07	\$ 1,467,561.93
Hickory Meadows	\$ 25,223.73	\$ 21,173.99	\$ 42,742.19	\$ 25,456.57	\$ 13,815.17	\$ 20,261.80	\$ 24,533.30	\$ 36,339.19	\$ 52,732.26	\$ 28,043.93	\$ 32,749.29	\$ 16,443.58	\$ 339,515.00
Jeff Waldvogel Trkg	\$ 26,878.60	\$ 25,936.68	\$ 28,830.91	\$ 26,536.01	\$ 27,584.51	\$ 29,965.62	\$ 30,097.86	\$ 30,818.19	\$ 24,924.46	\$ 25,184.27	\$ 24,721.16	\$ 24,585.23	\$ 326,063.50
Waldvogel Trucking	\$ 2,103.06	\$ 2,944.58	\$ 2,743.41	\$ 3,093.38	\$ 2,100.87	\$ 2,039.84	\$ 2,479.52	\$ 2,905.53	\$ 2,293.30	\$ 2,004.80	\$ 1,916.18	\$ 1,675.64	\$ 28,299.71
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
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: January 13, 2017
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Utilities Committee