

# Appleton Wastewater Treatment Plant

## Synopsis

July 2014 - September 2014

### 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 nine days. Dewatering processes functioned well and converted 11.26 Million Gallons (MG) of primary digested sludge to biosolids.

**Table 1 – Wastewater Influent / Effluent Treatment Data**

Characteristic	July 2014			August 2014			September 2014		
	Influent		Percent	Influent		Percent	Influent		Percent
AWWTP Flows (MG)									
Industrial Flow	52.6		17.8	51.8		17.7	50.0		16.1
Domestic Flow	243.4		82.2	240.8		82.3	266.7		85.7
Total Flow	296.0			292.6			311.2		
Pollutant Loadings (lbs)	Influent	Effluent	Removal	Influent	Effluent	Removal	Influent	Effluent	Removal
CBOD	767,299	7,278	99.1	868,980	9,074	99.0	856,262	7,953	99.1
TSS	1,436,328	3,777	99.7	1,424,159	9,189	99.4	1,424,938	3,850	99.7
Phosphorous	15,860	1,048	93.4	16,647	952	94.3	16,806	958	94.3
Ammonia	48,591	351	99.3	50,799	1,071	97.9	51,917	961	98.1

#### Work Completed:

- 41,740 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 \$30,050. A minimal amount (165 gallons) of ferrous chloride purchased chemical needed to be fed during the three month period to meet phosphorus discharge requirements.
- Monthly effluent ammonia removal averaged 98.4% for the three month period. The effluent ammonia concentration averaged 0.29 mg/L. The effluent limit for the period is 4.4 mg/L.

#### Work in Progress:

- Fine Screen Replacement Project:** Strand Associates engineers and AWWTP staff attended the bid opening for the Fine Screen Replacement Project. The bid was awarded to August Winter & Sons Construction Co. It is anticipated that work on this project will kick-off in mid-October.
- AWWTP Evaluation of Phosphorus Treatment Optimization and TMDL Compliance Project:** CH2M HILL provided an revised draft report (Evaluation of Phosphorus Treatment Optimization and TMDL Compliance) which included updates to the plant optimization sections and the addition of alternative compliance options (e.g. Adaptive Management and Water Quality Trading). The AWWTP received approval through Common Council to purchase new phosphorus chemical dosing pumps which are needed to conduct a full-scale treatment demonstration later this year. These results are critical to establish how effective existing

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processes can effectively reduce effluent phosphorus in comparison to future more stringent regulatory limits. Completion of the final CH2MHILL report is predicated on this information.

- **Digester Improvements Project:** AWWTP staff reviewed and evaluated engineering proposals for this project. McMahon Engineers was awarded the contract for services to complete the upgrade of recommended Digester equipment to address age and energy efficiency.
- **Everett Street Lift Station Improvement Project:** McMahon Engineers evaluated the lift station operations data and collections system information and met with AWWTP staff to refine preliminary design options. Subsequent meetings between the engineers and staff resulted in the final design from which plan drawings and bidding specifications were developed. A contractor pre-bid meeting was held in early October.
- **Personnel:** Utility Worker Eric Feil was selected to fill the Lab Technician vacancy in July. Eric has over 20 years of combined experience within the Utility Department. Travis Fleischman was hired to fill the vacant Utility Worker in August. We welcome both employees to their new roles!

### Regulatory Summary

- Monthly Discharge Monitoring reports for July, August and September were filed electronically on time for regulatory compliance. The 2014 third quarter short form was also submitted.
- AWWTP staff collected and compiled operational data to complete the WPDES permit renewal application. The application was submitted to the WDNR in late September.

### 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 conducted compliance monitoring sampling and pretreatment monitoring sampling to comply with 2014 requirements.
- Lab and operations staff completed chlorine residual and Fecal Coliform testing during the disinfection season which ended September 30<sup>th</sup>.

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**EFFLUENT QUALITY SUMMARY**

**July 2013 – September 2014**

<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>4.4 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>

**2013**

<b>July</b>	3	1	0.43	0.33	<0.01	21	7.3/7.6
<b>August</b>	3	2	0.60	0.58	<0.01	7	7.2/7.5
<b>September</b>	3	3	0.57	1.79	<0.01	22	7.3/7.6
<b>October</b>	3	4	0.65	1.21	NA	NA	7.2/7.8
<b>November</b>	4	2	0.28	0.62	NA	NA	7.5/7.7
<b>December</b>	6	4	0.57	3.38	NA	NA	7.2/7.5

**2014**

<b>January</b>	8	5	0.63	20.08	NA	NA	7.5/7.6
<b>February</b>	5	5	0.58	9.56	NA	NA	7.1/7.4
<b>March</b>	4	3	0.34	2.21	NA	NA	6.9/7.1
<b>April</b>	2	1	0.10	0.68	NA	NA	7.3/7.5
<b>May</b>	4	1	0.11	0.63	<0.01	17	7.1/7.4
<b>June</b>	3	2	0.29	0.42	<0.01	27	7.2/7.6
<b>July</b>	3	1	0.43	0.14	<0.01	11	7.4/7.6
<b>August</b>	4	4	0.39	0.40	<0.01	64	7.2/7.4
<b>September</b>	3	1	0.37	0.33	<0.01	14	7.2/7.5

**YEAR 2014 RECEIVING STATION REVENUE**

Hauler	January	February	March	April	May	June	July	August	September	October	November	December	Y-T-D Total
A & B Leist Trucking	\$ 14,313.06	\$ 14,872.60	\$ 57,727.42	\$ 82,647.36	\$ 91,913.49	\$ 64,171.69	\$ 19,283.58	\$ 52,587.89	\$ 63,504.47				\$ 461,021.56
CSR & Sons	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -
Den-Bec Inc.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -
Hickory Meadows	\$ 9,439.68	\$ 5,582.53	\$ 10,391.43	\$ 28,865.13	\$ 23,326.25	\$ 24,193.41	\$ 6,858.91	\$ 9,712.71	\$ 8,301.62				\$ 126,671.67
Jeff Waldvogel Trkg.	\$ 12,124.46	\$ 12,509.84	\$ 15,168.38	\$ 15,368.10	\$ 17,300.98	\$ 18,154.82	\$ 18,841.15	\$ 16,686.38	\$ 17,724.17				\$ 143,878.28
KA Services	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 255.49				\$ 255.49
Sanimax	\$ -	\$ -	\$ -	\$ 152.33	\$ -	\$ 83.42	\$ -	\$ -	\$ 247.90				\$ 483.65
Schwind Trucking	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 2,273.44	\$ 493.28	\$ 1,659.31				\$ 4,426.03
Van's Septic Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -
Veolia	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -				\$ -
Waldvogel Trucking	\$ 3,345.74	\$ 3,190.94	\$ 3,209.25	\$ 3,340.99	\$ 3,037.06	\$ 3,235.91	\$ 3,103.58	\$ 2,703.16	\$ 3,548.62				\$ 28,715.25
<b>2014 Total</b>	\$ 39,222.94	\$ 36,155.91	\$ 86,496.48	\$ 130,373.91	\$ 135,577.78	\$ 109,839.25	\$ 50,360.66	\$ 82,183.42	\$ 95,241.58	\$ -	\$ -	\$ -	\$ 765,451.93
<b>2013 Total</b>	\$46,492.59	\$47,168.51	\$65,744.46	\$84,936.86	\$50,541.77	\$52,141.61	\$49,581.40	\$45,491.61	\$49,009.86	\$60,183.00	\$57,203.91	\$ 35,438.28	\$ 643,933.86

Date: October 13, 2014  
Copies: K. Rindt (via email)  
C. Shaw (via email)  
B. Kreski

Utilities Committee