

Appleton Wastewater Treatment Plant
Synopsis
January 2015 - March 2015

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 12.70 Million Gallons (MG) of primary digested sludge to biosolids.

Table 1 – Wastewater Influent / Effluent Treatment Data

Characteristic	January 2015			February 2015			March 2015		
	Influent		Percent	Influent		Percent	Influent		Percent
AWWTP Flows (MG)									
Industrial Flow	50.2	16.7%		45.4	18.8%		48.9		16.4%
Domestic Flow	249.7	83.3%		195.9	81.2%		248.9		83.6%
Total Flow	299.9			241.3			297.8		
Pollutant Loadings (lbs)	Influent	Effluent	Removal	Influent	Effluent	Removal	Influent	Effluent	Removal
CBOD	951,586	13,216	98.6%	861,069	6,929	99.2%	958,781	10,286	98.9%
TSS	1,378,745	12,395	99.1%	1,444,063	7,208	99.5%	2,034,024	8,440	99.6%
Phosphorous	18,557	870	95.3%	18,268	523	97.1%	20,179	450	97.8%
Ammonia	90,247	13,283	85.3%	57,762	1,793	96.9%	64,865	2,616	96.0%

Work Completed:

- 26,315 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 \$18,950. As part of the Phosphorous Treatment Optimization study, 11,625 gallons of ferric chloride was purchased and fed at a cost \$8,370 in an effort to evaluate chemical removal strategies.
- Monthly effluent ammonia removal averaged 92.7% through the three month period. The plant average effluent concentration for the three month period was 2.39 mg/L. This is in compliance with the ammonia limit for the time period.

Work in Progress:

- Fine Screen Replacement Project:** Work started after the first of the year. Bar Screen #1 was removed, concrete modifications were made, and the new #1 Screen was installed and operable before the end of March. It is anticipated that the project will be completed in early May.
- Everett Street Lift Station Improvements Project:** Construction of a new lift station wet well started in early February. Delays associated with the new lift station equipment submittal process are anticipated to push out project Final Completion from the end of May to July.

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- **AWWTP Evaluation of Phosphorus Treatment Optimization and TMDL Compliance Project:** Efforts continued with Iron Salts products (Ferrous Sulfate and Ferric Chloride) dosing demonstrations conducted by engineers from CH2M Hill & McMahon. Engineers and plant staff will continue to evaluate the chemical feed rates and dosing point options to develop plant optimization alternatives.
- **Anaerobic Digester Maintenance & Improvements Project:** This project builds from the recommended maintenance and optimization goals focused on the digester gas mixing operation that were established from a 2010-2012 digester maintenance project. McMahon as the contracted engineer developed a gas purging and piping cleaning procedure for the inspection phase of this project in late 2014. McMahon continues to refine this plan and anticipates work to begin sometime in May. McMahon is working concurrently on the preliminary design of the anaerobic digester gas mix system improvements. Project bidding document development will occur once the preliminary design has been completed and approved.
- **AWWTP Removable Retaining Wall / Column Storage Project:** This project is intended to improve safety and efficiency with the storage of removable sludge building retaining wall components (concrete planks and steel columns). Applied Technologies completed bidding documents and specifications in early January. The project was awarded to Oudenhoven Construction, Inc. in February. Start of construction is scheduled for June 1st.

Regulatory Summary

- Monthly Discharge Monitoring reports for January, February and March were filed electronically on time for regulatory compliance. The 2015 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 2015 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 testing. Staff is also involved in pretreatment monitoring and WPDES permit renewal sampling and testing.

Staffing

- A vacancy at the Water Treatment Facility was filled by a WWTP operations employee, and that vacancy was filled through an internal posting. AWWTP staff is working with HR staff to fill the resultant opening.

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EFFLUENT QUALITY SUMMARY

January 2014 – March 2015

<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>

2014

January	8	5	0.63	20.08	NA	NA	7.5/7.6
February	5	5	0.58	9.56	NA	NA	7.1/7.4
March	4	3	0.34	2.21	NA	NA	6.9/7.1
April	2	1	0.1	0.68	NA	NA	7.3/7.5
May	4	1	0.11	0.63	<0.01	17	7.1/7.4
June	3	2	0.29	0.42	<0.01	27	7.2/7.6
July	3	1	0.43	0.14	<0.01	11	7.4/7.6
August	4	4	0.39	0.4	<0.01	64	7.2/7.4
September	3	1	0.37	0.33	<0.01	14	7.2/7.5
October	3	4	0.38	1.09	NA	NA	7.3/7.5
November	4	5	0.29	0.46	NA	NA	7.2/7.3
December	4	4	0.18	1.41	NA	NA	7.1/7.2

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

YEAR 2015 RECEIVING STATION REVENUE

Hauler	January	February	March	April	May	June	July	August	September	October	November	December	Y-T-D Total
A & B Leist Trucking	\$ 39,566.92	\$ 35,959.36	\$ 84,277.27										\$ 159,803.55
CSR & Sons	\$ -	\$ -	\$ -										\$ -
Den-Bec Inc.	\$ -	\$ -	\$ -										\$ -
Hickory Meadows	\$ 12,606.17	\$ 5,873.47	\$ 8,714.07										\$ 27,193.71
Jeff Waldvogel Trkge.	\$ 16,277.78	\$ 14,065.92	\$ 18,248.87										\$ 48,592.57
KA Services	\$ -	\$ -	\$ 651.22										\$ 651.22
Sarimax	\$ -	\$ -	\$ -										\$ -
Schwind Trucking	\$ -	\$ -	\$ -										\$ -
Van's Septic Service	\$ -	\$ -	\$ -										\$ -
Veolia	\$ -	\$ -	\$ -										\$ -
Waldvogel Trucking	\$ 6,027.05	\$ 3,846.88	\$ 3,211.82										\$ 13,085.75
2015 Total	\$ 74,477.92	\$ 59,745.63	\$ 115,103.25	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 249,326.80
2014 Total	\$ 39,222.94	\$ 36,155.91	\$ 86,496.48	\$ 130,373.91	\$ 135,577.78	\$ 109,839.25	\$ 50,360.66	\$ 82,183.42	\$ 93,241.58	\$ 100,825.24	\$ 79,914.06	\$ 104,059.73	\$ 1,050,250.96

* Tier Rate Structure increase effective July 1, 2015.

Date: April 16, 2015
 Copies: K. Rindt (via email)
 C. Shaw (via email)
 B. Kreski
 Utilities Committee