Appleton Wastewater Treatment Plant
Synopsis
October 2015 - December 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 12.16 Million Gallons (MG) of primary digested sludge to biosolids.

Table 1 – Wastewater Influent / Effluent Treatment Data

Characteristic	October 2015			November 2015			December 2015		
AWWTP Flows (MG)	Influent		Percent	Influent		Percent	Influent		Percent
Industrial Flow	52.7		17.7%	37.2		10.2%	51.2		8.7%
Domestic Flow	244.4		82.3%	328.7		89.8%	537.0		91.3%
Total Flow	297.1			365.9			588.2		
Pollutant Loadings (lbs)	Influent	Effluent	Removal	Influent	Effluent	Removal	Influent	Effluent	Removal
CBOD	809,873	14,833	98.2%	779,737	6,768	99.1%	829,968	24,605	97.0%
TSS	1,565,695	15,350	99.0%	1,514,317	8,766	99.4%	1,362,734	68,773	95.0%
Phosphorous	16,198	1,340	91.7%	15,805	1,378	91.3%	14,801	1,755	88.1%
Ammonia	54,513	2,320	95.7%	50,005	672	98.7%	56,913	4,535	92.0%

Work Completed:

- 48,060 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 $34,600. 9,330 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 95.5% for the three month period. The effluent ammonia concentration averaged 0.71 mg/L. The effluent limit for the period was 18.0 mg/L.

Work in Progress:

- **AWWTP Evaluation of Phosphorus Treatment Optimization and TMDL Compliance Project**: Operations staff continued to feed Phosphorus removal chemicals (Ferrous Sulfate and Ferric Chloride) at various feed rates and recommended dosages while monitoring Phosphorus concentrations and removals throughout the plant. These efforts will help determine long-term feed rates for WPDES compliance. A final project report is expected to be delivered in January 2016.

- **Digester Improvements Project:** AWWTP staff and McMahon engineers have completed bid documents for the continuation of this project into 2016. A pre-bid meeting will be held after the first of the year.

- **Midway Road/Scarlet Oak Lift Station Improvements:** McMahon engineers completed technical memos for both lift stations providing options and recommendations. AWWTP staff reviewed the documents with the engineers and provided comments and guidance. Both projects are anticipated to move forward early in 2016.

- **Personnel:** A new Liquids Operator trainee was hired in early November to fill a vacancy created in July. He is expected to fill a Liquids Operator rotation position after the first of the year.

Regulatory Summary

- Monthly Discharge Monitoring reports for October, November and December were filed electronically on time for regulatory compliance. The 2015 3rd and 4th quarter short forms were also submitted.
- Operations and Maintenance staff responded to a high flow event on December 14th triggered by rainfall of 2.8" over a 30 hour period. Flows in excess of plant capacity resulted in a sanitary sewer overflow (SSO) between the hours of 7:30 AM and 1:15 PM. Lift station and sewer system integrity were maintained through the period, and plant operation was returned to normal within 36 hours.

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 2015 requirements.

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EFFLUENT QUALITY SUMMARY

October 2014 – December 2015

Effluent Parameter:	*CBOD mg/L*	*TSS mg/L*	*Total Phosphorus mg/L*	*Ammonia-Nitrogen mg/L*	*Chlorine Residual mg/L*	*Fecal Coliform Colonies/ 100 ml*	*pH s.u.*
WPDES LIMITS:	*25 mg/L monthly avg.*	*30 mg/L monthly avg.*	*1 mg/L monthly avg.*	*18.0 mg/L monthly avg.*	*0.037 mg/L daily limit*	*400 col/100ml geom. mean*	*6.0 - 9.0 daily limit*
2014							
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
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

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	$ 91,270.68	$ 83,037.64	$ 105,415.80	$ 58,170.12	$ 115,980.27	$ 93,786.41	$ 71,803.76	$ 108,158.67	$ 120,048.57	$ 1,007,475.47
CSR & Sons	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Den-Bec Inc.	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Hickory Meadows	$ 12,606.17	$ 5,873.47	$ 8,714.07	$ 12,742.21	$ 9,936.05	$ 15,198.43	$ 3,849.98	$ 6,075.72	$ 19,377.80	$ 4,709.04	$ 6,325.36	$ 67,699.07	$ 173,107.37
Jeff Waldvogel Trkg.	$ 16,277.78	$ 14,065.92	$ 18,248.87	$ 17,863.76	$ 20,869.40	$ 21,886.52	$ 21,560.62	$ 21,299.65	$ 21,130.95	$ 26,018.81	$ 23,625.06	$ 24,455.80	$ 247,303.14
KA Services	$ -	$ -	$ 651.22	$ 970.13	$ 295.68	$ 90.02	$ 823.86	$ 516.99	$ 1,805.87	$ -	$ -	$ -	$ 5,153.77
Sanimax	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Schwind Trucking	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Van's Septic Service	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Veolia	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Waldvogel Trucking	$ 6,027.05	$ 3,846.88	$ 3,211.82	$ 2,726.33	$ 2,234.76	$ 2,486.81	$ 2,724.00	$ 3,367.71	$ 2,997.89	$ 3,849.58	$ 3,056.22	$ 3,555.25	$ 40,084.30
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	$ 215,758.69	$ 1,473,124.05
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	$95,241.58	$100,825.24	$79,914.06	$ 104,059.73	$ 1,050,250.96

* Tier Rate Structure increase effective July 1, 2015.

Date: January 18, 2016
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Utilities Committee