

TO: HOVMSD COMMISSION

**FR: KEVIN SKOGMAN
DIRECTOR OF OPERATIONS & MAINTENANCE**

RE: CHEMICAL USE REPORT FOR 2020

DT: APRIL 5, 2021

Attached is the Chemical Use Report for 2020; quantities plus cost of chemicals. The cost and quantities relative to millions of gallons of wastewater treated at the plant are also provided.

Included is the natural gas, electricity, and water consumption and the cost associated with each utility.

The continued increase in chemical prices has substantially increased the plants total chemical cost, which drives up the cost per million gallons treated. The total gallons purchased has remained fairly steady over the last few years. There is a slight increase in sodium hypochlorite due to needing to stay compliant with fecal coliform per the permit.

2020 CHEMICAL USE REPORT

GALLONS	2013	2014	2015	2016	2017	2018	2019	2020
TOTAL INFLUENT FLOW	2,014,148,000	2,101,955,000	1,887,988,000	2,020,671,000	2,094,199,000	2,127,692,000	2,493,211,300	2,170,385,000
**FLOW, MAY - SEPTEMBER	808,344,000	905,023,000	780,667,000	769,869,000	902,376,000	923,535,000	1,015,345,000	911,676,000
TOTAL \$ COST OF PURCHASES								
TREATMENT CHEMICAL	2013	2014	2015	2016	2017	2018	2019	2020
FERRIC SULFATE - ACTIFLO	\$345,375.00	\$289,797.00	\$282,560.00	\$306,169.00	271,749.00	\$250,405.00	\$327,298.00	\$379,168.00
POLYMER - ACTIFLO	## 44,903.57	67,245.65	41,055.00	48,185.00	41,528.00	46,772.00	39,909.00	44,871.00
POLYMER - DAF	23,920.00	23,920.00	20,930.00	26,910.00	26,910.00	39,184.00	30,997.00	37,257.00
SULFURIC ACID - BIOFILTER	43,709.57	20,458.29	34,709.00	35,368.00	26,291.00	26,159.00	36,122.00	31,631.00
SODIUM HYPOCHLORITE**	18,563.48	14,315.34	14,695.00	14,530.00	19,726.00	21,049.00	29,565.00	35,922.00
SODIUM BISULFATE**	<u>2,630.16</u>	<u>2,632.29</u>	<u>2326.00</u>	<u>3,943.00</u>	<u>2902.00</u>	<u>4682.00</u>	<u>5455.00</u>	<u>5641.00</u>
TOTAL	\$479,101.78	\$418,368.57	\$396,275.00	\$435,105.00	\$389,106.00	\$388,251.00	\$469,346.00	\$534,490.00
\$ COST / MGD TREATED								
TREATMENT CHEMICAL	2013	2014	2015	2016	2017	2018	2019	2020
FERRIC SULFATE - ACTIFLO	\$171.47	\$137.87	\$149.66	\$151.49	\$129.76	\$117.00	\$131.28	\$174.70
POLYMER - ACTIFLO	22.29	31.99	21.75	23.84	19.83	22.00	16.01	20.67
POLYMER - DAF	11.88	11.38	11.08	13.32	12.84	18.00	12.43	17.17
SULFURIC ACID - BIOFILTER	21.70	9.73	18.38	17.50	12.55	12.00	14.49	14.57
SODIUM HYPOCHLORITE**	22.96	15.82	18.82	18.87	21.86	22.80	29.12	39.40
SODIUM BISULFATE**	<u>3.25</u>	<u>2.91</u>	<u>2.98</u>	<u>5.12</u>	<u>3.22</u>	<u>5.10</u>	<u>5.37</u>	<u>6.19</u>
TOTAL	\$253.55	\$209.70	\$222.67	\$230.14	\$200.06	\$196.90	\$208.70	\$272.70
TOTAL GALLONS PURCHASED								
TREATMENT CHEMICAL	2013	2014	2015	2016	2017	2018	2019	2020
FERRIC SULFATE - ACTIFLO	181,300	149,457	142,252	171,981	179,228	178,333	217,049	205,853
POLYMER - ACTIFLO	## 5,225	6,375	4,677	5,502	4,731	5,225	4,402	4,952
POLYMER - DAF	2,200	2,200	1,930	2,476	2,476	3,575	2,751	3,301
SULFURIC ACID - BIOFILTER	14,031	6,914	11,587	13,067	10,062	10,062	13,336	11,729
SODIUM HYPOCHLORITE**	11,832	9,130	9,220	9,116	12,360	13,156	16,628	18,360
SODIUM BISULFATE**	1,542	1,533	1,399	2,396	1,754	2,838	3,078	3,051

2020 CHEMICAL USE REPORT - CONTINUED

GALLONS OF CHEMICAL / MGD TREATED

TREATMENT CHEMICAL	2013	2014	2015	2016	2017	2018	2019	2020
FERRIC SULFATE - ACTIFLO	90.01	71.10	75.35	85.10	85.61	85.2	87.1	94.8
POLYMER - ACTIFLO	2.59	3.03	2.48	2.72	2.26	2.5	1.77	2.28
POLYMER - DAF	1.09	1.05	1.02	1.23	1.18	1.7	1.10	1.52
SULFURIC ACID - BIOFILTER	6.97	3.29	6.14	6.47	4.80	4.7	5.36	5.4
SODIUM HYPOCHLORITE**	14.64	10.09	11.81	11.84	13.69	14.2	16.38	20.14
SODIUM BISULFATE**	1.91	1.69	1.79	1.19	1.94	3.0	3.03	3.35

** May through September chemical use only

Emptied bulk tank contents and switched to totes. Gallons estimated.

GAS, ELECTRIC AND WATER CONSUMPTION

NATURAL GAS	2013	2014	2015	2016	2017	2018	2019	2020
Therms	101,195	104,315	81,752	70,013	76,013	89,690	82,885	68,430
Cost \$	\$60,247.96	\$90,580.17	\$51,661.64	\$38,836.02	\$44,583.71	\$47,502.00	\$42,814.71	\$36,413.73
\$ Cost / MGD Treated	-	-	-	-	-	\$22.33	\$17.00	\$16.78
Therms / MGD Treated	-	-	-	-	-	42	33.24	31.53

POTABLE WATER	2013	2014	2015	2016	2017	2018	2019	2020
Cubic Feet	519,381	447,992	385,130	380,677	458,500	476,500	491,400	464,900
Cost \$	\$17,715.85	\$21,010.64	\$20,226.56	\$20,436.52	\$22,278.74	\$22,655.00	\$24,437.90	\$21,920.54
\$ Cost / MGD Treated	-	-	-	-	-	\$10.65	\$9.80	\$10.10
Cubic Feet / MGD Treated	-	-	-	-	-	224	197	214

ELECTRICAL POWER	2013	2014	2015	2016	2017	2018	2019	2020
KWH	6,755,637	7,589,498	7,356,888	7,446,624	7,468,201	7,682,476	8,051,500	7,957,863
COST \$	\$489,531.09	\$527,632.56	\$534,006.19	\$499,300.03	\$509,871.00	\$508,330.00	\$504,393.43	\$494,540.75
KWH / MGD Treated	3,354.1	3,610.7	3,896.68	3,684.62	3,566.14	3,610	3,229.38	3664.85
\$ Cost / MGD Treated	-	-	-	-	-	\$238.91	\$202.31	\$227.86

PHOSPHORUS	2019 LBS	2020 LBS
Pounds Total Phosphorus (Influent) In	75,998	79,013
Pounds Total Phosphorus (Effluent) Out to Fox River	3,648	2,599
Pounds Total Phosphorus Removed	72,350	76,414
Percent Phosphorus Removed	95%	97%