

TO: HOVMSD COMMISSION

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

RE: CHEMICAL USE REPORT FOR 2019

DT: April 7, 2020

Attached is the Chemical Use Report for 2019; 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.

In 2019 there was a significant increase in the total gallons of ferric sulfate purchased due to an increase in flow from being a very wet year and loadings coming into the plant. And with the new permit being issued the beginning of 2019 was to maintain permit compliance.

As you can see in the total cost of chemical purchases along with the total gallons purchased, the cost had increased because the gallons purchased was more. The ACTI-FLO and DAFT polymer's differences compared to other years are from the polymer inventory going into 2019.

The cost per million gallons treated still remains about the same this year as other years even with the increase in influent flow.

With the gallons of chemical/MGD treated and an increase of 366 million gallons of flow compared to 2018, the numbers really didn't increase much. It continues to show that District staff and crew continue to maintain efficiencies with the constantly changing conditions and requirements in wastewater treatment.

CHEMICAL USE REPORT - FOR 2019

<u>GALLONS</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
TOTAL INFLUENT FLOW	1,844,606,000	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
** FLOW, MAY - SEPTEMBER	729,640,000	808,344,000	905,023,000	780,667,000	769,869,000	902,376,000	923,535,000	1,015,345,000
TOTAL \$ COST OF PURCHASES								
<u>TREATMENT CHEMICAL</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
FERRIC SULFATE - ACTIFLO	\$388,000.50	\$345,375.00	\$289,797.00	\$282,560.00	\$306,169.00	271,749.00	\$250,405.00	\$ 327,298.00
POLYMER - ACTIFLO	52,659.20	## 44,903.57	67,245.65	41,055.00	48,185.00	41,528.00	46,772.00	39,909.00
POLYMER - DAF	20,930.00	23,920.00	23,920.00	20,930.00	26,910.00	26,910.00	39,184.00	30,997.00
SULFURIC ACID - BIOFILTER	32,851.47	43,709.57	20,458.29	34,709.00	35,368.00	26,291.00	26,159.00	36,122.00
SODIUM HYPOCHLORITE**	13,995.34	18,563.48	14,315.34	14,695.00	14,530.00	19,726.00	21,049.00	29,565.00
SODIUM BISULFATE**	3,867.65	2,630.16	2,632.29	2,326.00	3,943.00	2,902.00	4,682.00	5,455.00
TOTAL	\$512,304.16	\$479,101.78	\$418,368.57	\$396,275.00	\$435,105.00	\$389,106.00	\$388,251.00	\$469,346.00
\$ COST / MGD TREATED								
<u>TREATMENT CHEMICAL</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
FERRIC SULFATE - ACTIFLO	\$210.34	\$171.47	\$137.87	\$149.66	\$151.49	\$129.76	\$117.00	\$ 131.28
POLYMER - ACTIFLO	28.55	22.29	31.99	21.75	23.84	19.83	22.00	16.01
POLYMER - DAF	11.35	11.88	11.38	11.08	13.32	12.84	18.00	2.43
SULFURIC ACID - BIOFILTER	17.81	21.70	9.73	18.38	17.50	12.55	12.00	14.49
SODIUM HYPOCHLORITE**	19.18	22.96	15.82	18.82	18.87	21.86	22.80	11.86
SODIUM BISULFATE**	5.30	3.25	2.91	2.98	5.12	3.22	5.00	2.19
TOTAL	\$292.53	\$253.55	\$209.70	\$222.67	\$230.14	\$200.06	\$196.80	\$178.26
TOTAL GALLONS PURCHASED								
<u>TREATMENT CHEMICAL</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
FERRIC SULFATE - ACTIFLO	201,651	181,300	149,457	142,252	171,981	179,228	178,333	217,049
POLYMER - ACTIFLO	5,000	## 5,225	6,375	4,677	5,502	4,731	5,225	4,402
POLYMER - DAF	1,925	2,200	2,200	1,930	2,476	2,476	3,575	2,751
SULFURIC ACID - BIOFILTER	10,780	14,031	6,914	11,587	13,067	10,062	10,062	13,336
SODIUM HYPOCHLORITE**	9,188	11,832	9,130	9,220	9,116	12,360	13,156	16,628
SODIUM BISULFATE**	2,204	1,542	1,533	1,399	2,396	1,754	2,838	3,078

CHEMICAL USE REPORT - FOR 2019 CONTINUED

GALLONS OF CHEMICAL / MGD TREATED

TREATMENT CHEMICAL	2012	2013	2014	2015	2016	2017	2018	2019
FERRIC SULFATE - ACTIFLO	109.32	90.01	71.10	75.35	85.10	85.61	85.2	87.1
POLYMER - ACTIFLO	2.71	2.59	3.03	2.48	2.72	2.26	2.5	1.77
POLYMER - DAF	1.04	1.09	1.05	1.02	1.23	1.18	1.7	1.10
SULFURIC ACID - BIOFILTER	5.84	6.97	3.29	6.14	6.47	4.80	4.7	5.36
SODIUM HYPOCHLORITE**	12.59	14.64	10.09	11.81	11.84	13.69	14.2	16.38
SODIUM BISULFATE**	3.02	1.91	1.69	1.79	1.19	1.94	3.0	3.03

** May through September chemical use only

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

GAS, ELECTRIC AND WATER CONSUMPTION

NATURAL GAS	2012	2013	2014	2015	2016	2017	2018	2019
Therms	80,140	101,195	104,315	81,752	70,013	76,013	89,690	82,885
Cost \$	\$57,132.00	\$60,247.96	\$90,580.17	\$51,661.64	\$38,836.02	\$44,583.71	\$47,502.00	\$ 42,814.71

POTABLE WATER	2012	2013	2014	2015	2016	2017	2018	2019
Cubic Feet	542,449	519,381	447,992	385,130	380,677	458,500	476,500	491,400
Cost \$	\$27,306.64	\$17,715.85	\$21,010.64	\$20,226.56	\$20,436.52	\$22,278.74	\$22,655.00	\$ 24,437.90

ELECTRICAL POWER	2012	2013	2014	2015	2016	2017	2018	2019
KWH	7,151,221	6,755,637	7,589,498	7,356,888	7,446,624	7,468,201	7,682,476	8,051,500
COST \$	\$518,223.94	\$489,531.09	\$527,632.56	\$534,006.19	\$499,300.03	\$509,871.00	\$508,330.00	\$ 504,393.43
KWH / MGD Treated	3,876.8	3,354.1	3,610.7	3,896.68	3,684.62	3,566.14	3,610	3,229.38