

TO: HOVMSD COMMISSION

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

RE: CHEMICAL USE REPORT FOR 2017

DT: MARCH 8, 2018

Attached is the Chemical Use Report for 2017, the quantities, and cost of chemicals. The cost and quantities relative to millions of gallons of wastewater treated at the plant are also provided.

District staff and crew strive to maintain and improve efficiencies in chemical quantities, as well as cost relative to the quantity of wastewater treated. In 2017 the significant difference was in the cost of the ferric sulfate.

Also included is the natural gas, electricity, and water consumption by the Heart of the Valley MSD and the cost associated with each utility.

CHEMICAL USE REPORT - FOR 2017

<u>GALLONS</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
TOTAL INFLUENT FLOW	2,391,172,000	2,359,297,000	1,844,606,000	2,014,148,000	2,101,955,000	1,887,988,000	2,020,671,000	2,094,199,000
**FLOW, MAY - SEPTEMBER	1,156,045,000	901,167,000	729,640,000	808,344,000	905,023,000	780,667,000	769,869,000	902,376,000
TOTAL \$ COST OF PURCHASES								
<u>TREATMENT CHEMICAL</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
FERRIC SULFATE - ACTIFLO	\$429,425.29	\$448,904.10	\$388,000.50	\$345,375.00	\$289,797.00	\$282,560.00	\$306,169.00	271,749.00
POLYMER - ACTIFLO	56,026.00	52,973.80	52,659.20	## 44,903.57	67,245.65	41,055.00	48,185.00	41,528.00
POLYMER - DAF	32,432.27	23,414.00	20,930.00	23,920.00	23,920.00	20,930.00	26,910.00	26,910.00
SULFURIC ACID - BIOFILTER	30,023.28	49,639.34	32,851.47	43,709.57	20,458.29	34,709.00	35,368.00	26,291.00
SODIUM HYPOCHLORITE**	13,559.72	12,078.67	13,995.34	18,563.48	14,315.34	14,695.00	14,530.00	19,726.00
SODIUM BISULFATE**	<u>7,436.89</u>	<u>4,940.04</u>	<u>3,867.65</u>	<u>2,630.16</u>	<u>2,632.29</u>	<u>2,326.00</u>	<u>3,943.00</u>	<u>2,902.00</u>
TOTAL	\$568,903.45	\$591,949.95	\$512,304.16	\$479,101.78	\$418,368.57	\$396,275.00	\$435,105.00	\$389,106.00
\$ COST / MGD TREATED								
<u>TREATMENT CHEMICAL</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
FERRIC SULFATE - ACTIFLO	\$179.59	\$190.27	\$210.34	\$171.47	\$137.87	\$149.66	\$151.49	\$129.76
POLYMER - ACTIFLO	23.43	22.45	28.55	22.29	31.99	21.75	23.84	19.83
POLYMER - DAF	13.56	9.92	11.35	11.88	11.38	11.08	13.32	12.84
SULFURIC ACID - BIOFILTER	12.56	21.04	17.81	21.70	9.73	18.38	17.50	12.55
SODIUM HYPOCHLORITE**	11.73	13.40	19.18	22.96	15.82	18.82	18.87	21.86
SODIUM BISULFATE**	<u>6.43</u>	<u>5.48</u>	<u>5.30</u>	<u>3.25</u>	<u>2.91</u>	<u>2.98</u>	<u>5.12</u>	<u>3.22</u>
TOTAL	\$247.30	\$262.56	\$292.53	\$253.55	\$209.70	\$222.67	\$230.14	\$200.06
TOTAL GALLONS PURCHASED								
<u>TREATMENT CHEMICAL</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
FERRIC SULFATE - ACTIFLO	205,953	231,938	201,651	181,300	149,457	142,252	171,981	179,228
POLYMER - ACTIFLO	5,906	5,030	5,000	## 5,225	6,375	4,677	5,502	4,731
POLYMER - DAF	2,368	2,114	1,925	2,200	2,200	1,930	2,476	2,476
SULFURIC ACID - BIOFILTER	11,518	14,238	10,780	14,031	6,914	11,587	13,067	10,062
SODIUM HYPOCHLORITE**	10,146	8,919	9,188	11,832	9,130	9,220	9,116	12,360
SODIUM BISULFATE**	4,639	2,914	2,204	1,542	1,533	1,399	2,396	1,754
CHEMICAL USE REPORT - FOR 2017 CONTINUED								

GALLONS OF CHEMICAL / MGD TREATED

<u>TREATMENT CHEMICAL</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
FERRIC SULFATE - ACTIFLO	86.13	98.31	109.32	90.01	71.10	75.35	85.10	85.61
POLYMER - ACTIFLO	2.47	2.13	2.71	2.59	3.03	2.48	2.72	2.26
POLYMER - DAF	0.99	0.90	1.04	1.09	1.05	1.02	1.23	1.18
SULFURIC ACID - BIOFILTER	4.82	6.03	5.84	6.97	3.29	6.14	6.47	4.80
SODIUM HYPOCHLORITE**	8.78	9.90	12.59	14.64	10.09	11.81	11.84	13.69
SODIUM BISULFATE**	4.01	3.23	3.02	1.91	1.69	1.79	1.19	1.94

** May through September chemical use only

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

GAS, ELECTRIC AND WATER CONSUMPTION

<u>NATURAL GAS</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
Therms	87,515	80,140	101,195	104,315	81,752	70,013	76,013
Cost \$	\$82,357.54	\$57,132.00	\$60,247.96	\$90,580.17	\$51,661.64	\$38,836.02	\$44,583.71

<u>POTABLE WATER</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
Cubic Feet	446,600	542,449	519,381	447,992	385,130	380,677	458,500
Cost \$	\$23,370	\$27,306.64	\$17,715.85	\$21,010.64	\$20,226.56	\$20,436.52	\$22,278.74

<u>ELECTRICAL POWER</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
KWH	7,229,374	7,253,463	7,151,221	6,755,637	7,589,498	7,356,888	7,446,624	7,468,201
COST \$	\$478,170.12	\$485,898.56	\$518,223.94	\$489,531.09	\$527,632.56	\$534,006.19	\$499,300.03	\$509,871.00
KWH / MGD Treated	3,023.4	3,074.4	3,876.8	3,354.1	3,610.7	3,896.68	3,684.62	3,566.14