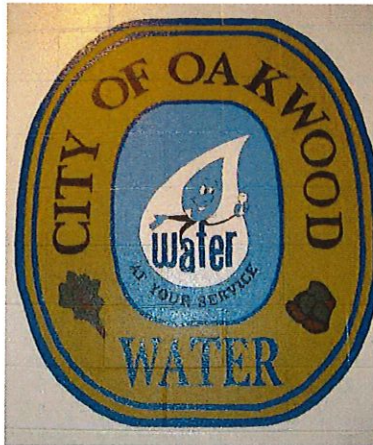


210 Shafor Water Plant




120 Springhouse Water Plant

**2018**  
**WATER PRODUCTION**  
**ANNUAL REPORT**



April 12, 2019

Prepared by Gary L. Dursch Sr.

  
Water Plant Superintendent

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## **I. INTRODUCTION/BRIEF HISTORY**

This report provides a summary of the operations of the city of Oakwood water system for the year 2018. It includes the following items:

- Water Pumpage Statistics
- Water Monitoring and Testing (OEPA Compliance)
- Water System Maintenance
- Budget Summary

### **Brief History**

Prior to 1954, the city of Oakwood purchased all of its water from outside sources, primarily the city of Dayton. At that time, the Ohio Department of Health regulated public water systems and the rules and regulations were fairly limited, thus the price of water was relatively low. In 1954 Oakwood drilled two wells at 120 Springhouse Road. This site became known as the “Springhouse Wellfield.” This was the beginning of Oakwood’s quest to become water independent.

From 1954 to 1965 Oakwood pumped water from these two wells. This proved so successful that three new wells (Wells #1, 2 & 3) were drilled to a greater depth so as to sustain heavier pumping. The original two wells were abandoned. This increased water production lowered Oakwood’s reliance on Dayton water. The water was chlorinated to ensure that it was free from bacteria.

In 1978 a second well field was developed at the south end of Firwood Drive off Irving Avenue in Dayton. It was referred to as the “Firwood Wellfield.” Between 1978 and 1988 three production wells (Wells #4, 5 & 6) were drilled at this location. The groundwater resources in this area proved to be abundant. In 1985 Oakwood purchased land on the north side of Irving Avenue to build a soccer field. In 1986 Well #7 was drilled adjacent to the soccer field. This site became known as the “Soccer Field Wellfield”.

Prior to using water from the Firwood Wellfield, the Ohio EPA required the City to construct an Iron and Manganese Removal Plant due to elevated levels of iron and manganese in Well #5. The plant was constructed in 1980 at the 210 Shafor Boulevard Service Yard. This plant also housed the chlorination system for Wells #4, 5, 6 & 7.

In 1987 Oakwood explored the possibility of softening the City water. In 1988 plans were completed for the water softening plant at 210 Shafor Boulevard. The plant was constructed in 1989. In 1991 plans were completed for the water softening plant at 120 Springhouse Road and the plant was built in 1992. Both water softening plants use the “Ion Exchange” softening process. This is the same process used in most private home water softening units. The softening system removes hardness, primarily calcium and magnesium. Periodically the softening units require backwashing and regenerating of the resin bed filters.

In 2004, Oakwood drilled Well #8 in the Firwood Wellfield and placed it into service. This well was needed to further enhance Oakwood’s water independence.

## Water Pumpage Statistics

The reports and tables in Sections III & IV provide monthly and yearly totals of the city of Oakwood's 2018 water pumpage. They include monthly and yearly totals for all wells, the Shafor plant, Springhouse plant and water purchased from outside sources (i.e., city of Dayton and Montgomery County). In 2018, Oakwood was able to provide 99.58% of its own water for daily usage, even for fire responses.

## II. Water Monitoring and Testing (OEPA Compliance)

The following samples were collected at the entry points of the water system at the 120 Springhouse and the 210 Shafor Water Treatment Plants as required by the Ohio EPA:

- Nitrates, collected June 5, 2018
- Inorganic Compounds (IOC), collected June 5, 2018
- Volatile Organic Chemicals (VOC), collected June 19, 2018
- Radiologicals, collected June 5, 2018
- Total Trihalomethanes (TTHM), collected July 2, 2018
- Total Haloacetic Acids (HAA5), collected July 2, 2018

Samples for Lead and Copper were collected from 20 Oakwood properties between June 9 and June 29, 2018.

All samples tested as required by the Ohio EPA and under the 2018 Ohio EPA Chemical Monitoring schedule were in compliance with the Safe Drinking Water Act. Table 1 on page 5 lists the results of the lead and copper sampling program. Table 2 on pages 6 – 7 compares Oakwood's water with EPA standards. All results are from the most recent samples taken. Some samples are only required to be taken every three years. The monthly routine sampling consists of the following tests:

- ***10 bacteriological samples per month from Distribution System.***
- ***2 sodium samples per month from Distribution System.***
- ***1 sodium sample per month from each Plant.***
- ***1 iron and manganese sample per week from each Plant.***
- ***Hardness samples daily from each Plant and Distribution System.***
- ***Free and total chlorine samples daily from each Plant as well as from the Distribution System.***
- ***1 chloride and pH sample per month from each Plant (NPDES Stormwater Permit requirement).***
- ***1 Total Dissolved Solids sample per month from each Plant (NPDES Stormwater Permit requirement).***

General test results include:

- **All 120 bacteriological samples tested negative for coliform bacteria.**
- **Raw water sodium averaged 107 mg/L at 210 Shafor, up from 98 mg/L in 2017; and 137 mg/L at 120 Springhouse, up from 134 mg/L in 2017.**
- **System water sodium averaged 352 mg/L, up from 260 mg/L in 2017.**
- **Iron at both plant effluents averaged <0.1 mg/L.**
- **Manganese at both plant effluents averaged <0.01 mg/L.**
- **System water hardness at 210 Shafor averaged 175 mg/L (10.2 GPG).**
- **System water hardness at 120 Springhouse averaged 177 mg/L (10.4 GPG).**

**TABLE 1  
OAKWOOD 2018 LEAD & COPPER TESTING RESULTS**

<b>EPA Copper Action Level (ug/L)</b>		<b>1,350</b>
	<b>SAMPLE NUMBER</b>	<b>COPPER RESULTS (ug/L)</b>
1	18F2038-09	27.6
2	18F2038-16	38.2
3	18F2038-18	38.3
4	18F2038-10	48.6
5	18F2038-13	54.2
6	18F2038-08	63.3
7	18F2038-02	72
8	18F2038-17	94.9
9	18F2038-07	125
10	18F2038-12	129
11	18F2038-03	136
12	18F2038-19	136
13	18F2038-05	139
14	18F2038-20	141
15	18F2038-01	173
16	18F2038-11	187
17	18F2038-14	233
18	18F2038-06	289
19	18F2038-15	545
20	18F2038-04	771

<b>EPA Lead Action Level (ug/L)</b>		<b>15.5</b>
	<b>SAMPLE NUMBER</b>	<b>LEAD RESULTS (ug/L)</b>
1	18F2038-08	BDL
2	18F2038-18	0.86
3	18F2038-03	0.94
4	18F2038-09	0.98
5	18F2038-10	0.98
6	18F2038-15	1.13
7	18F2038-12	1.17
8	18F2038-16	1.31
9	18F2038-05	1.37
10	18F2038-17	1.57
11	18F2038-13	1.59
12	18F2038-04	1.70
13	18F2038-14	1.81
14	18F2038-01	2.40
15	18F2038-19	2.53
16	18F2038-06	2.85
17	18F2038-11	3.76
18	18F2038-20	3.96
19	18F2038-02	4.19
20	18F2038-07	4.35

BDL: Below Detectible Limits

To be in compliance with the OEPA Lead & Copper Rule, sample results must be below the set action level for lead and copper, as listed in the table above, at the 90<sup>th</sup> percentile. Oakwood's 90<sup>th</sup> percentile is highlighted in light blue above.

**TABLE 2  
OAKWOOD 2018 WATER TESTING RESULTS**

CONTAMINANT	OAKWOOD'S WATER		OEPA MCL	DATE COLLECTED
	Shafor	Springhouse		
VOLATILE ORGANIC COMPOUNDS	ug/L	ug/L	ug/L	
Benzene	<0.5	<0.5	5.0	6/19/18
Carbon tetrachloride	<0.5	<0.5	5.0	6/19/18
1,1-Dichloroethane	<0.5	<0.5	7.0	6/19/18
1,2-Dichloroethane	<0.5	<0.5	5.0	6/19/18
cis-1,2-Dichloroethene	<0.5	<0.5	70.0	6/19/18
Dichloromethane	<0.5	<0.5	5.0	6/19/18
1,2-Dichloropropane	<0.5	<0.5	5.0	6/19/18
Ethylbenzene	<0.5	<0.5	700.0	6/19/18
Styrene	<0.5	<0.5	100.0	6/19/18
Toluene	<0.5	<0.5	1000.0	6/19/18
1,1,1-Trichloroethane	<0.5	<0.5	200.0	6/19/18
Tetrachloroethene	<0.5	<0.5	5.0	6/19/18
1,2,4-Trichlorobenzene	<0.5	<0.5	70.0	6/19/18
Trichloroethene	<0.5	<0.5	5.0	6/19/18
1,1,2-Trichloroethane	<0.5	<0.5	5.0	6/19/18
Vinyl chloride	<0.5	<0.5	2.0	6/19/18
Xylenes, Total	<0.5	<0.5	10000.0	6/19/18
Bromodichloromethane	<0.5	<0.5	TTHM*	6/19/18
Bromoform	<0.5	0.52	TTHM	6/19/18
Chloroform	<0.5	<0.5	TTHM	6/19/18
Dibromochloromethane	<0.5	0.73	TTHM	6/19/18
Bromobenzene	<0.5	<0.5	NR**	6/19/18
Bromochloromethane	<0.5	<0.5	NR	6/19/18
Bromomethane	<0.5	<0.5	NR	6/19/18
n-Butylbenzene	<0.5	<0.5	NR	6/19/18
sec-Butylbenzene	<0.5	<0.5	NR	6/19/18
tert-Butylbenzene	<0.5	<0.5	NR	6/19/18
Chlorobenzene	<0.5	<0.5	NR	6/19/18
Chloroethane	<0.5	<0.5	NR	6/19/18
Chloromethane	<0.5	<0.5	NR	6/19/18
2-Chlorotoluene	<0.5	<0.5	NR	6/19/18
4-Chlorotoluene	<0.5	<0.5	NR	6/19/18
Dibromomethane	<0.5	<0.5	NR	6/19/18
1,2-Dichlorobenzene	<0.5	<0.5	NR	6/19/18
1,3-Dichlorobenzene	<0.5	<0.5	NR	6/19/18
1,4-Dichlorobenzene	<0.5	<0.5	NR	6/19/18
Dichlorodifluoromethane	<0.5	<0.5	NR	6/19/18
1,1-Dichloroethene	<0.5	<0.5	NR	6/19/18
trans-1,2-Dichloroethene	<0.5	<0.5	NR	6/19/18
1,3-Dichloropropane	<0.5	<0.5	NR	6/19/18
2,2-Dichloropropane	<0.5	<0.5	NR	6/19/18
1,1-Dichloropropene	<0.5	<0.5	NR	6/19/18
1,3-Dichloropropene	<0.5	<0.5	NR	6/19/18
Hexachlorobutadiene	<0.5	<0.5	NR	6/19/18
Isopropylbenzene	<0.5	<0.5	NR	6/19/18
Naphthalene	<0.5	<0.5	NR	6/19/18

\* TTHM: Trihalomethanes regulated separately as Disinfection Byproducts

\*\* NR: Not Regulated

**TABLE 2 (cont.)**

CONTAMINANT	OAKWOOD'S WATER		OEPA MCL	DATE COLLECTED
	Shafor	Springhouse		
SYNTHETIC ORGANIC CHEMICALS	ug/L	ug/L	ug/L	
Alachlor	<0.2	<0.2	2.0	6/27/17
Atrazine	<0.3	<0.3	3.0	6/27/17
Simazine	<0.35	<0.35	4.0	6/27/17

CONTAMINANT	OAKWOOD'S WATER		OEPA MCL	DATE COLLECTED
	Shafor	Springhouse		
INORGANIC COMPOUNDS	ug/L	ug/L	ug/L	
Antimony, total	<4.0	<4.0	6.0	6/5/18
Barium, total	0.0793	0.0581	2.0	6/5/18
Beryllium, total	<1.0	<1.0	4.0	6/5/18
Cadmium, total	<1.0	0.780	5.0	6/5/18
Chromium, total	<10.0	<10.0	100.0	6/5/18
Cyanide, total	<5.0	<5.0	200.0	6/5/18
Fluoride, total	0.2	0.2	4.0	6/5/18
Mercury, total	<0.5	<0.5	2.0	6/5/18
Nickel, total	<20.0	<20.0		6/5/18
Selenium, total	<5.0	<5.0	50.0	6/5/18
Thallium, total	<1.5	<1.5	2.0	6/5/18

CONTAMINANT	OAKWOOD'S WATER		OEPA MCL	DATE COLLECTED
	Wonderly	Ridgeway		
TOTAL TRIHALOMETHANES	ug/L	ug/L	ug/L	
Chloroform	1.04	1.70		7/2/18
Bromoform	3.44	6.49		7/2/18
Bromodichloromethane	3.03	5.68		7/2/18
Dibromochloromethane	5.74	10.78		7/2/18
Total TTHM's	13.25	24.65	80.0	7/2/18

CONTAMINANT	OAKWOOD'S WATER		OEPA MCL	DATE COLLECTED
	Wonderly	Ridgeway		
FIVE HALOACETIC ACIDS	ug/L	ug/L	ug/L	
Dibromoacetic Acid	1.502	2.677		7/2/18
Dichloroacetic Acid	<1.00	<1.00		7/2/18
Monobromoacetic Acid	<1.00	<1.00		7/2/18
Monochloroacetic Acid	<2.00	<2.00		7/2/18
Trichloroacetic Acid	<1.00	<1.00		7/2/18
Total HAA5's	1.502	2.677	60.00	

CONTAMINANT	OAKWOOD'S WATER		OEPA MCL	DATE COLLECTED
	Shafor	Springhouse		
MISCELLANEOUS	mg/L	mg/L	mg/L	
Nitrate	1.34	1.34	10	6/5/18

CONTAMINANT	OAKWOOD'S WATER		OEPA MCL	DATE COLLECTED
	Shafor	Springhouse		
RADIOLOGICAL	pci/L	pci/L	pci/L	
Alpha, total	<3	<3	15	6/5/18
Radium-228	<1.0	<1.0	5	6/5/18

The Oakwood water plants reduced the hardness level by 64.8% on the average while the sodium content of the water increased by 248% on the average during 2018. Both of these percentages are within normal operating ranges.

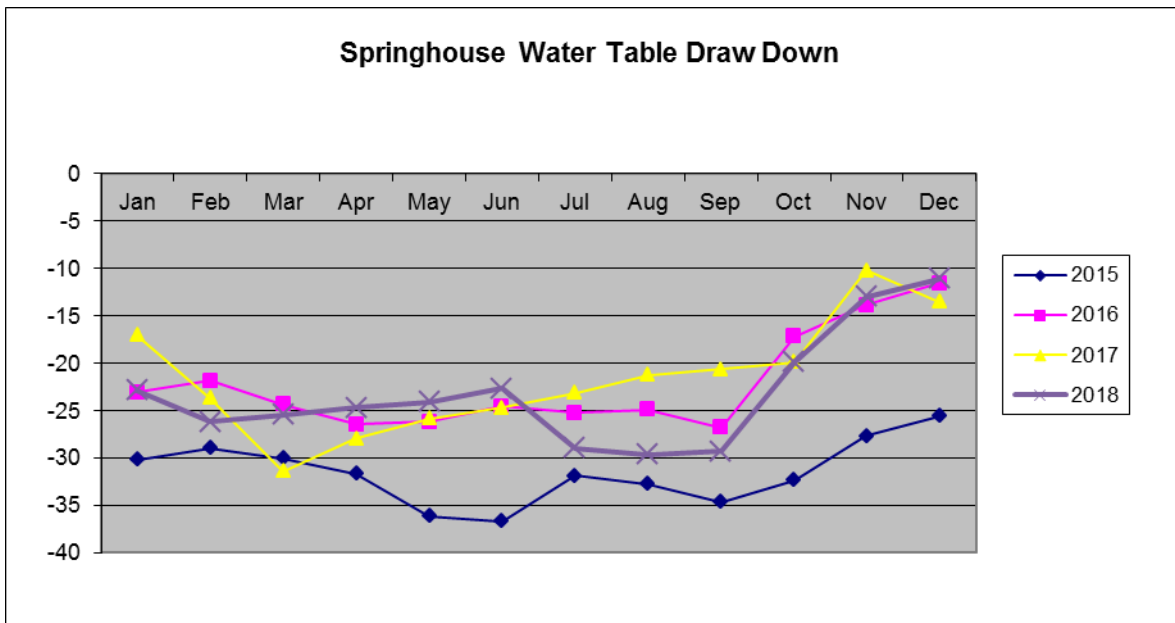
### III. WELL PUMPAGE REPORT AND CHARTS

The eight production wells produced 486,173,000 gallons of water in 2018, which is an average of 1,332,000 gallons per day. In 2017, the eight production wells produced 418,658,000 gallons of water. This represents a 16.1% increase in raw water produced in 2018. The 2018 maximum day well production was on July 14 at 2,308,000 gallons. It is common that our highest usage occurs during the summer months when many property owners irrigate their lawns. The 2018 minimum day well production was on November 16 at 649,000 gallons. The minimum day production normally occurs in the fall or winter.

Out of the 486,173,000 gallons pumped in 2018, 23,593,000 gallons were used to either backwash filters or regenerate the softening units at 210 Shafor and 120 Springhouse. This represents 4.85% of the total water pumped for the year, a 50.5% decrease from 2017. This large decrease is attributed to inaccurate flow meters. The meters were over 14 years old and had become inaccurate.

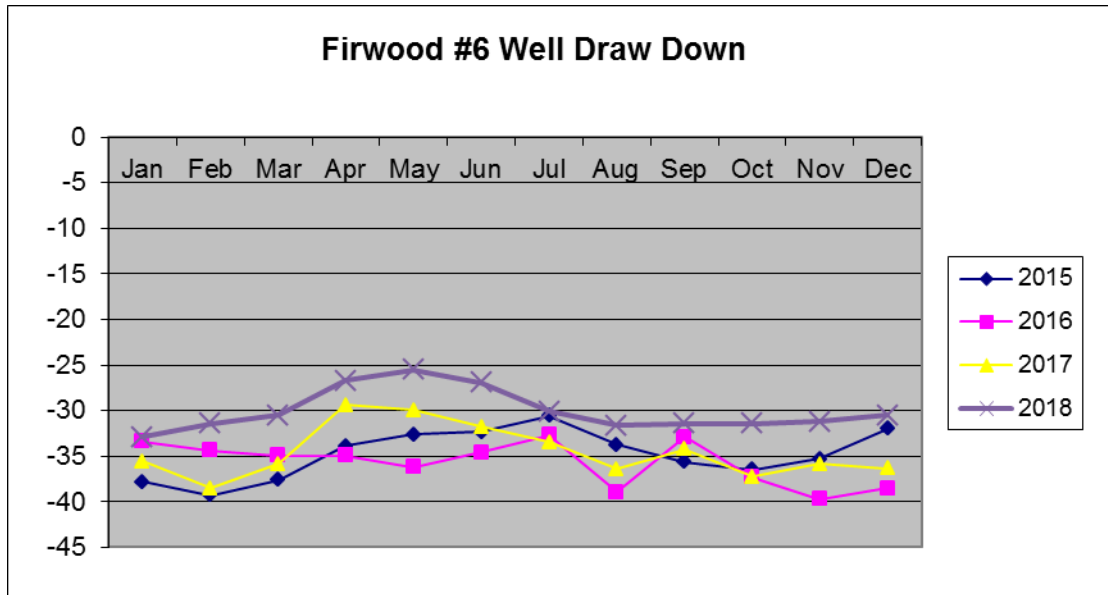
Chart 1 below and Chart 2 on the next page show the 2018 water table draw down compared to 2015, 2016 and 2017.

**CHART 1**





## CHART 2



The aquifer water levels in the wells have not been heavily stressed for many years due to relatively mild summers with plenty of rain. The rest of the wells at Firwood (Wells #4, #7 and #8) experienced draw downs similar to Well #6.

Table 3 on the next page shows a comparison of total well production in gallons per well per month for 2017 and 2018.

#### IV. TOTAL PUMPAGE TO SYSTEM REPORT AND CHARTS

The City was able to produce water to meet 99.58% of the total demand of 424,779,000 gallons (1,164,000 avg/day). No fire events (i.e., extra demand) occurred in 2018 that required city of Dayton or Montgomery County water.

In 2018 we purchased 1,816,000 gallons of water from the city of Dayton. We had several events where we either had power outages or malfunctioning plant controls that prevented Oakwood well pumps from coming on when needed. The pump control PLC's were replaced in 2018 so this problem should not occur again.



**TABLE 3**  
**CITY OF OAKWOOD WATER DEPARTMENT**  
**MONTHLY WELL PUMPAGE RECORD**

YEAR: 2018  
 MONTH: December

MONTH	WELL #1		WELL #2		WELL #3		WELL #4		WELL #5		WELL #6		WELL #7		WELL #8		MONTHLY TOTAL		ANNUAL TOTAL	
	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
JANUARY	17.721	23.768	0.444	0.104	0.492	0.731	2.032	0.000	8.438	0.000	0.581	12.218	0.194	0.180	0.000	0.240	29.902	37.241	29.902	37.241
FEBRUARY	18.025	22.238	0.049	0.000	1.004	1.784	0.000	0.000	6.355	0.000	2.149	12.053	0.000	0.580	0.000	0.000	27.582	36.655	57.484	73.896
MARCH	20.350	25.185	0.715	0.000	3.716	0.643	0.000	0.000	1.529	0.000	8.524	12.217	0.035	1.877	0.050	0.000	34.919	39.922	92.403	113.818
APRIL	12.915	24.213	1.909	0.043	2.732	1.656	0.000	0.000	3.037	0.000	10.537	12.060	0.027	1.365	0.009	0.204	31.166	39.541	123.569	153.359
MAY	0.000	25.264	8.576	0.268	10.013	2.152	0.000	0.000	2.833	0.000	11.089	14.410	0.092	2.175	0.000	0.836	32.603	45.105	156.172	198.464
JUNE	2.612	24.835	7.391	0.245	8.794	1.792	2.913	0.000	1.858	0.000	13.519	14.840	0.061	3.724	0.000	0.946	37.148	46.382	193.320	244.846
JULY	20.138	23.667	0.000	0.000	0.867	4.420	3.447	0.000	1.305	0.000	11.740	15.205	0.004	5.378	0.000	3.225	37.501	51.895	230.821	296.741
AUGUST	19.386	23.554	0.000	0.000	0.751	2.141	14.911	0.000	9.191	0.000	2.880	15.151	0.332	4.218	0.000	0.933	47.451	45.997	278.272	342.738
SEPTEMBER	19.085	20.432	0.000	0.000	0.293	1.120	6.692	0.000	10.654	2.092	4.440	12.489	0.085	2.838	0.000	1.029	41.249	40.000	319.521	382.738
OCTOBER	17.002	14.918	0.029	0.045	0.228	0.246	0.000	0.000	13.494	21.586	7.062	1.223	0.000	0.000	0.000	0.000	37.815	38.018	357.336	420.756
NOVEMBER	10.126	13.256	0.000	0.121	0.238	0.001	0.000	0.000	4.905	20.006	14.690	0.871	0.000	0.000	0.000	0.000	29.959	34.255	387.295	455.011
DECEMBER	14.356	15.260	0.030	0.031	4.107	0.000	0.000	0.000	0.512	2.286	12.358	13.585	0.000	0.000	0.000	0.000	31.363	31.162	418.658	486.173
ANNUAL	171.716	256.590	19.143	0.857	33.235	16.686	29.995	0.000	64.111	45.970	99.569	136.322	0.830	22.335	0.059	7.413	418.658	486.173	418.658	486.173
TOTALS	41.02%	52.78%	4.57%	0.18%	7.94%	3.43%	7.16%	0.00%	15.31%	9.46%	23.78%	28.04%	0.20%	4.59%	0.01%	1.52%	100.00%	100.00%		

AVG. DAY (2017 YTD):	<u>1.147</u> M.G.D.	2017	Springhouse wells	<u>224.094</u> MGD	<u>53.53%</u>	2018	Springhouse wells	<u>274.133</u> MGD	<u>56.39%</u>
AVG. DAY (2018 YTD):	<u>1.332</u> M.G.D.		Firwood wells	<u>194.564</u> MGD	<u>46.47%</u>		Firwood wells	<u>212.040</u> MGD	<u>43.61%</u>

Table 4 below shows a comparison of the water resources needed to meet the City's demands in 2017 and 2018.

**TABLE 4  
WATER RESOURCE RECORD**

<b>Location</b>	<b>2017 Gallons</b>	<b>2017%</b>	<b>2018 Gallons</b>	<b>2018%</b>
Oakwood WTPs	371,918,000	100.0%	426,781,000	99.58%
Dayton/Shroyer	0	0%	1,797,000	0.419%
Dayton/Springhouse	0	0%	19,000	0.004%
County/Fairmont	0	0%	0	0%
<b>TOTALS:</b>	371,918,000	100%	428,597,000	100%

There was a increase in demand of 56,679,000 gallons of water in 2018 compared to 2017 (15.2%). Table 5 on the next page shows the comparison in total gallons pumped to the system per month for 2017 and 2018.

## V. MAINTENANCE

The following is a summary of the larger maintenance projects that took place in 2018.

- January: Replace vent on water tower  
Install electrical grounding on water tower
- February: Replace old lights with LED lighting at 210 Shafor WTP  
Rebuild #2 booster pump at water tower booster station
- March: Repair cl2 leak at 120 Springhouse WTP  
Rebuild all control valves on four softening units at 210 Shafor WTP
- April: Cleaned both salt bins at 210 Shafor  
Replace control relay at Well #6  
Replace 120 Springhouse plant controls
- May: Replace PRV at 120 Springhouse  
Install new outside doors at 210 Shafor WTP
- June: Fix cl2 leak at 120 Springhouse  
Cut brush back on well field road on Firwood  
Rebuild backwash valve 210 Shafor WTP
- July: New pump and motor for Well #2  
New pump and motor for Well #5  
Replace control module on #2 VFD at 120 Springhouse WTP
- August: New bypass meter at 120 Springhouse WTP  
Replace cl2 feed line, pump and injector at 210 Shafor WTP  
Install 10" EZ valve, 4' shut off valve and 4" check valve at Well #4
- September: Replace cl2 feed line at 120 Springhouse
- October: Cleaned #2 salt bin at 120 Springhouse WTP
- November: Replaced all electronic switches for the SCADA system
- December: Replaced 9 outside security lights with LEDs at 120 Springhouse

All preventive maintenance was performed on schedule and all day-to-day repairs were performed as needed. All parts inventories are up-to-date in case of emergencies.



**CITY OF OAKWOOD WATER DEPARTMENT  
MONTHLY PUMPAGE TO SYSTEM RECORD**

YEAR: 2018  
MONTH: December

**TABLE 5**

MONTH	SPRINGHOUSE		FIRWOOD		DAYTON/SHROYER		FAIRMONT		DAYTON/SPRING.		MONTHLY TOTAL		ANNUAL TOTAL	
	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018	2017	2018
JANUARY	17.628	21.825	10.439	11.107	0.000	0.286	0.000	0.000	0.000	0.000	28.067	33.218	28.067	33.218
FEBRUARY	17.885	20.328	7.383	10.664	0.000	0.000	0.000	0.000	0.000	0.000	25.268	30.992	53.335	64.210
MARCH	23.558	21.441	9.014	12.267	0.000	0.000	0.000	0.000	0.000	0.000	32.572	33.708	85.907	97.918
APRIL	16.655	21.141	12.251	12.256	0.000	0.000	0.000	0.000	0.000	0.000	28.906	33.397	114.813	131.315
MAY	18.337	22.371	12.538	16.109	0.000	0.000	0.000	0.000	0.000	0.000	30.875	38.480	145.688	169.795
JUNE	18.465	21.217	17.010	18.451	0.000	0.000	0.000	0.000	0.000	0.000	35.475	39.668	181.163	209.463
JULY	18.943	26.394	15.363	22.664	0.000	0.453	0.000	0.000	0.000	0.019	34.306	49.529	215.469	258.992
AUGUST	18.411	24.227	21.737	18.909	0.000	0.000	0.000	0.000	0.000	0.000	40.148	43.136	255.617	302.128
SEPTEMBER	17.812	20.320	15.949	16.919	0.000	0.000	0.000	0.000	0.000	0.000	33.761	37.239	289.378	339.367
OCTOBER	15.625	14.429	14.575	16.851	0.000	0.305	0.000	0.000	0.000	0.000	30.200	31.585	319.578	370.952
NOVEMBER	9.088	12.282	15.665	12.891	0.000	0.754	0.000	0.000	0.000	0.000	24.753	25.927	344.331	396.879
DECEMBER	16.631	14.375	10.956	13.525	0.000	0.000	0.000	0.000	0.000	0.000	27.587	27.900	371.918	424.779
ANNUAL	209.038	240.350	162.880	182.613	0.000	1.797	0.000	0.000	0.000	0.019	371.918	424.779	371.918	424.779
TOTALS	56.21%	56.58%	43.79%	42.99%	0.00%	0.42%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%		

2017 Summary		
	M.G.	
Oakwood:	371.918	100.00%
Dayton:	0.000	0.00%
County:	0.000	0.00%
TOTAL:	371.918	100%

2018 Summary		
	M.G.	
Oakwood:	422.963	99.57%
Dayton:	1.816	0.43%
County:	0.000	0.00%
TOTAL:	424.779	100%

2017 Avg. per day 1.019 MGD

2018 Avg. per day: 1.164 MGD

## VI. BUDGET/FINANCES

The 2018 budget allocation for Oakwood Water Production was \$603,999.38. In 2018, the Oakwood Water Production Unit spent \$553,594.22 toward the production of the City's drinking water. This computes to an average cost of \$1,138.67 per million gallons pumped from the city's eight wells in 2018, down from \$1,194.40 per million gallons in 2017. The cost per million gallons will fluctuate up or down depending on the total water demand for the year. 2018 had an average water demand higher than 2017 due to a warmer and fairly dry summer. We continually strive to bring down the cost of water by optimizing our treatment process.

The water production unit budget consists of five main categories: personnel, utilities, chemicals, maintenance and miscellaneous. The following charts show what percentage of the budget goes to each of these categories and shows a comparison from the year before.

CHART 3

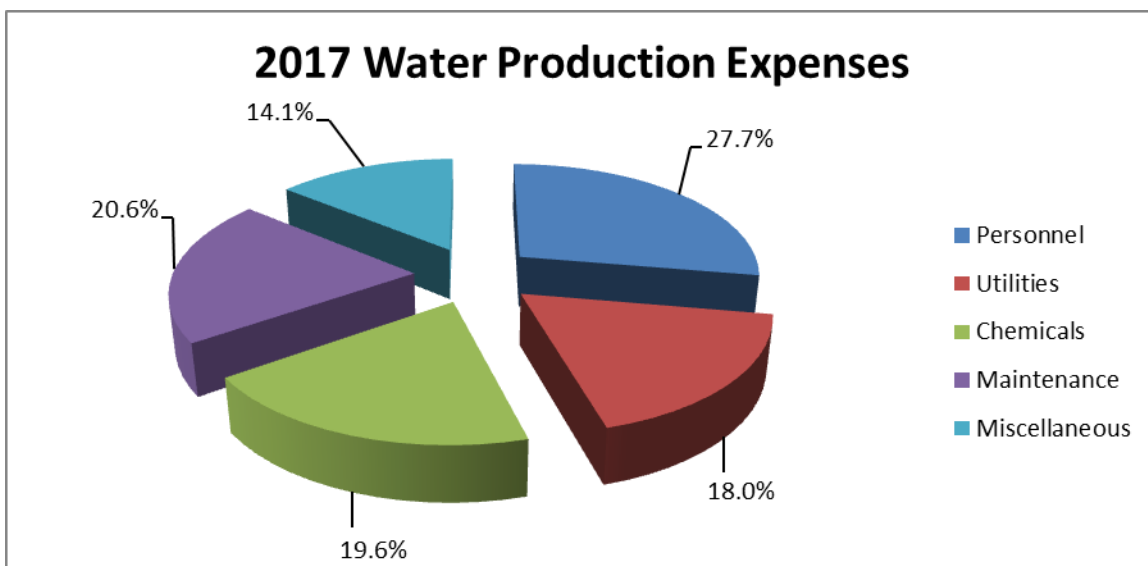
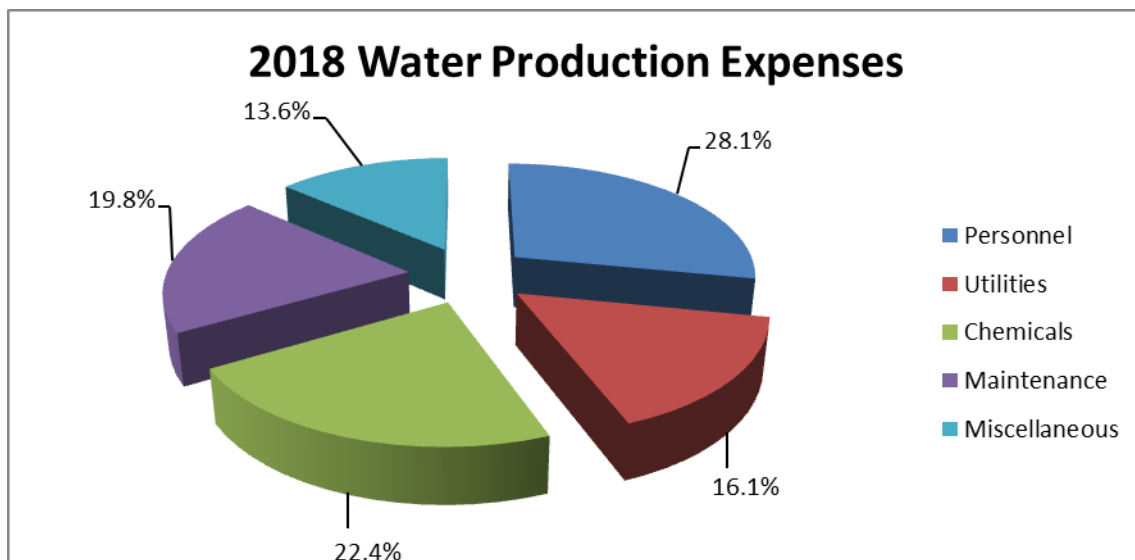


CHART 4



Personnel costs were \$155,790.47 for the year representing a 12.35% increase from 2017. Utility costs were \$89,338.52 which includes electric and natural gas representing a 0.74% decrease from 2017. Chemical costs were \$123,822.02 representing a 26.64% increase over 2017. 952 tons of salt compared to 866 tons in 2017 and 3,630 gallons of sodium hypochlorite compared to 3,490 gallons in 2017 were used to treat the water.

Maintenance costs were \$109,460.48 representing a 6.41% increase compared to 2017.

## **VII. CONCLUSION**

In reviewing our water system, 2018 was another successful year. All monthly and annual reports to the Ohio EPA and Ohio Department of Natural Resources were submitted on time. All lab testing was completed as required. We met or exceeded all Ohio and Federal EPA requirements and regulations. Our triannual OEPA Sanitary Survey was conducted in September and no violations were found.

We continually look at ways to optimize our treatment process in order to maintain high water quality at the lowest cost. Some recent accomplishments include replacing faulty micro-switches, rebuilding process valves, adjusting treatment sequences, and more closely monitoring regeneration cycles on the softeners. We replaced the system controls at 210 Shafor and 120 Springhouse which allows us to better monitor and adjust the treatment process. In 2017 we continued to improve our water treatment plants by replacing the original softening media in the four filters at 210 Shafor Boulevard. All process valves on these four units were completely rebuilt to assure accurate operation. We will complete the same project at 120 Springhouse Road in 2019.

There were several new OEPA regulations that went into effect in 2018. These included Asset Management, Water Distribution System Disruption of Service and the Revised Lead and Copper Rule. We have made the necessary revisions to our operations to comply with these new regulations.

In looking forward to 2019 and beyond, we will continue to seek ways to operate the water plants in the most efficient manner producing the highest quality water possible.

Respectfully submitted,  
Gary L. Dursch Sr.  
Water Plant Superintendent