



210 Shafor Water Plant

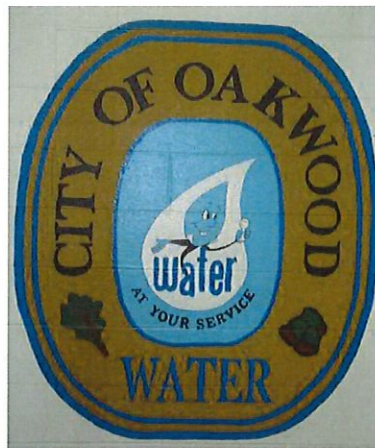


120 Springhouse Water Plant

**2020**

## **WATER PRODUCTION**

## **ANNUAL REPORT**



July 2021

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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 2020. It includes the following items:

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

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 at the Springhouse property to a greater depth so as to sustain heavier pumping. The original two wells were abandoned. Operating Wells #1, 2 & 3 increased water production and lowered Oakwood's reliance on Dayton water. The water was chlorinated to ensure that it was free from bacteria.

In 1978 Oakwood developed a second well field 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.

The reports and tables in Sections III & IV provide monthly and yearly totals of the city of Oakwood's 2020 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 2020, Oakwood was able to provide 99.71% 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 2, 2020
- Synthetic Organic Compounds (SOC), collected June 2, 2020
- Total Trihalomethanes (TTHM), collected July 14, 2020
- Total Haloacetic Acids (HAA5), collected July 14, 2020

Samples for Lead and Copper were collected from 20 Oakwood properties between June 7 and June 30, 2020.

All samples tested as required by the Ohio EPA and under the 2020 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 are as follows:

- **All 120 bacteriological samples tested negative for coliform bacteria.**
- **Raw water sodium averaged 101 mg/L at 210 Shafor, up from 98 mg/L in 2019; and 141 mg/L at 120 Springhouse, up from 131 mg/L in 2019.**
- **System water sodium averaged 285 mg/L, down from 300 mg/L in 2019.**
- **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 183 mg/L (10.7 GPG).**
- **System water hardness at 120 Springhouse averaged 167 mg/L (9.8 GPG).**

**TABLE 1  
OAKWOOD 2020 LEAD & COPPER TESTING RESULTS**

EPA Copper Action Level (ug/L)		1,350
	SAMPLE NUMBER	COPPER RESULTS (ug/L)
1	LC214	15.2
2	LC230	39.5
3	LC221	41.3
4	LC206	54.4
5	LC201	58.7
6	LC228	61.1
7	LC223	71.3
8	LC205	84.2
9	LC203	102
10	LC224	103
11	LC226	109
12	LC222	112
13	LC213	147
14	LC218	162
15	LC210	192
16	LC225	193
17	LC209	212
18	LC216	225
19	LC227	228
20	LC202	254

EPA Lead Action Level (ug/L)		15.5
	SAMPLE NUMBER	LEAD RESULTS (ug/L)
1	LC214	BDL
2	LC216	0.54
3	LC201	0.61
4	LC205	0.65
5	LC203	0.84
6	LC225	1.1
7	LC228	1.1
8	LC210	1.3
9	LC224	1.3
10	LC230	1.3
11	LC222	1.7
12	LC218	2.2
13	LC223	2.3
14	LC202	2.5
15	LC209	2.7
16	LC206	2.8
17	LC221	2.9
18	LC227	2.9
19	LC213	3.8
20	LC216	12.7

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 2020 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	6/2/20
Atrazine	<0.3	<0.3	3.0	6/2/2/20
Simazine	<0.35	<0.35	4.0	6/2/20

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	0.85	1.2		7/14/20
Bromoform	1.9	3.7		7/14/20
Bromodichloromethane	1.5	3.2		7/14/20
Dibromochloromethane	3.0	5.9		7/14/20
Total TTHM's	7.3	13.9	80.0	

CONTAMINANT	OAKWOOD'S WATER		OEPA MCL	DATE COLLECTED
	Wonderly	Ridgeway		
FIVE HALOACETIC ACIDS	ug/L	ug/L	ug/L	
Dibromoacetic Acid	1.9	2.4		7/14/20
Dichloroacetic Acid	<1.00	<1.00		7/14/20
Monobromoacetic Acid	<1.00	<1.00		7/14/20
Monochloroacetic Acid	<2.00	<2.00		7/14/20
Trichloroacetic Acid	<1.00	<1.00		7/14/20
Total HAA5's	1.9	2.4	60.00	

CONTAMINANT	OAKWOOD'S WATER		OEPA MCL	DATE COLLECTED
	Shafor	Springhouse		
MISCELLANEOUS	mg/L	mg/L	mg/L	
Nitrate	1.0	1.5	10	6/2/20

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 66% on the average while the sodium content of the water increased by 261% on the average during 2019. Both of these percentages are within normal operating ranges.

### III. WELL PUMPAGE REPORT AND CHARTS

The eight production wells produced 506,086,000 gallons of water in 2020, which is an average of 1,387,000 gallons per day. In 2019, the eight production wells produced 507,833,000 gallons of water. This represents a .35% decrease in raw water produced in 2020. The 2020 maximum day well production was on July 6 at 2,632,000 gallons. It is common that our highest usage occurs during the summer months when many property owners irrigate their lawns. The 2020 minimum day well production was on September 29 at 682,000 gallons. The minimum day production normally occurs in the fall or winter.

Out of the 506,086,000 gallons pumped in 2020, 33,613,000 gallons were used to either backwash the iron and manganese filters or regenerate the softening units at 210 Shafor and 120 Springhouse. This represents 6.64% of the total water pumped for the year, a 2.56% decrease from 2019. The primary flow meters were replaced in 2020 and accurately report plant production.

Chart 1 below and Chart 2 on the next page show the 2020 water table draw down compared to 2017, 2018 and 2019.

CHART 1

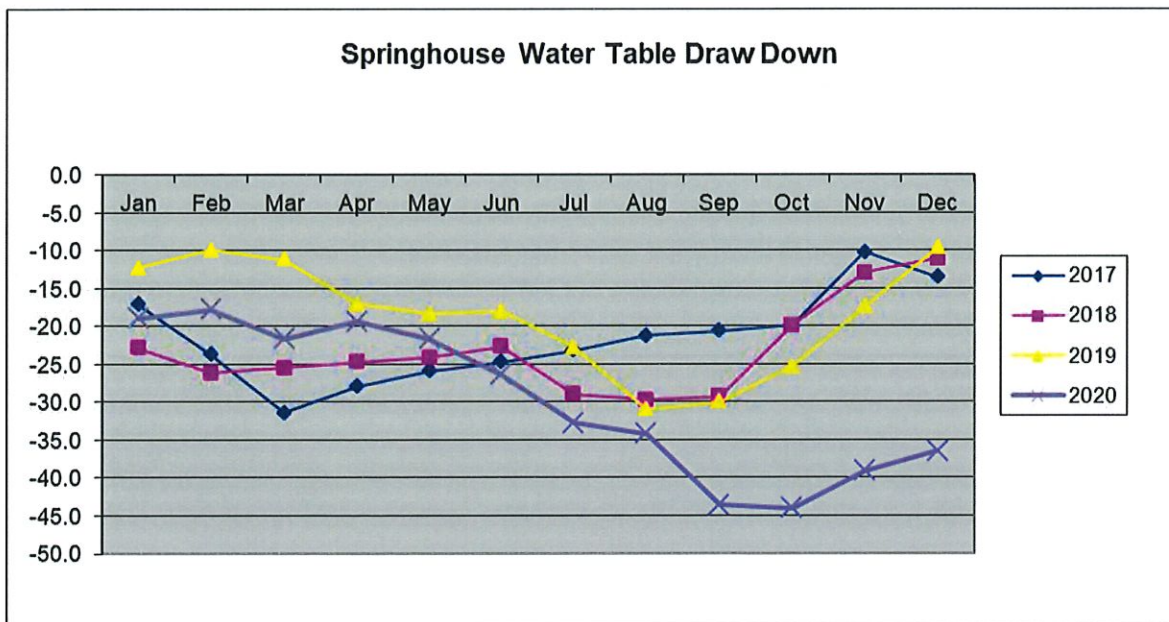
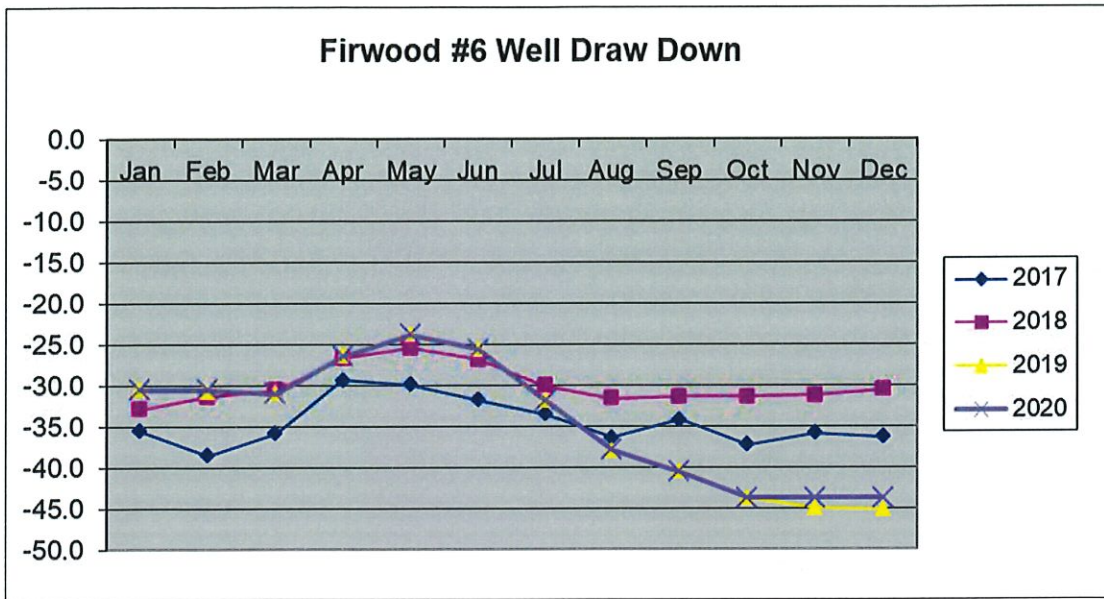




CHART 2



The aquifer water levels in the wells have not been heavily stressed for many years due to relatively mild summers with plenty of rain. At the end of 2020 we experienced a mild drought for several months resulting in the drop in the water table at the end of 2020, most pronounced at Springhouse. The rest of the wells at Firwood (Wells #4, #7 and #8) experienced drawdowns similar to Well #6.

Table 3 on the next page shows a comparison of total well production in gallons per well per month for 2019 and 2020.

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

The City was able to produce water to meet 99.71% of the total demand of 456,549,000 gallons (1,250,819 avg/day). The maximum day system usage was on July 6 at 2,393,000 gallons and the minimum day system usage was on September 6 at 816,000 gallons. No fire events (i.e., extra demand) occurred in 2020 that required city of Dayton or Montgomery County water. During the month of August and September we did purchase 1,345,000 gallons due to a power failure at the Springhouse facility.



TABLE 3

CITY OF OAKWOOD WATER DEPARTMENT  
MONTHLY WELL PUMPAGE RECORD

YEAR: 2020  
MONTH: December

MONTH	WELL #1		WELL #2		WELL #3		WELL #4		WELL #5		WELL #6		WELL #7		WELL #8		MONTHLY TOTAL		ANNUAL TOTAL		
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	
JANUARY	16.433	19.130	0.173	0.000	0.000	0.050	9.701	4.255	4.292	0.000	5.043	0.000	0.000	0.000	0.000	11.716	35.642	35.151	35.642	35.151	
FEBRUARY	14.744	17.182	0.000	0.019	0.000	0.705	12.591	5.622	9.611	0.205	0.000	0.000	0.561	0.000	0.000	10.175	36.946	34.469	72.588	69.620	
MARCH	20.284	21.663	0.049	0.002	0.057	0.718	13.547	4.418	0.861	0.671	5.142	0.000	0.000	0.000	0.000	10.897	39.940	38.369	112.528	107.989	
APRIL	24.643	17.242	0.104	0.000	0.340	0.000	10.723	10.438	0.115	1.218	2.959	3.592	0.000	0.000	0.000	6.129	38.884	38.619	151.412	146.608	
MAY	25.138	22.419	0.141	0.001	0.442	0.005	7.457	7.676	1.839	10.609	6.410	2.309	0.000	0.000	0.000	0.008	41.427	43.027	192.839	189.635	
JUNE	23.918	23.610	0.472	0.035	0.371	0.100	0.015	10.180	8.045	4.316	14.309	9.245	0.000	2.858	0.000	0.000	47.130	50.344	239.969	239.979	
JULY	24.852	23.326	2.073	1.573	1.252	2.550	4.444	0.000	5.293	4.482	14.857	13.668	0.000	6.241	0.000	5.167	52.771	57.007	292.740	296.986	
AUGUST	24.236	22.439	2.254	1.538	4.529	3.040	7.056	0.005	7.755	4.646	7.179	8.003	0.000	6.305	0.000	5.147	53.009	51.123	345.749	348.109	
SEPTEMBER	22.542	22.307	0.604	0.889	4.092	6.187	7.623	0.000	8.435	5.439	6.433	9.902	0.000	6.171	0.000	4.308	54.037	50.895	399.786	399.004	
OCTOBER	18.756	22.687	0.057	0.091	0.878	1.808	6.907	0.000	4.011	0.000	1.615	12.754	0.000	1.556	0.000	0.000	41.593	38.896	441.379	437.900	
NOVEMBER	2.500	18.012	0.000	0.000	0.000	0.000	8.781	0.000	6.079	0.000	3.942	4.979	0.000	0.959	10.224	8.908	31.526	32.858	472.905	470.758	
DECEMBER	17.307	18.651	0.051	0.000	0.159	0.000	4.708	0.000	1.822	0.000	0.000	14.387	0.000	1.361	10.931	0.929	34.978	35.328	507.883	506.086	
ANNUAL	235.353	248.668	5.978	4.148	12.120	15.163	93.553	42.594	58.158	31.586	67.889	78.839	0.000	26.012	34.832	59.076	507.883	506.086	507.883	506.086	
TOTALS	46.34%	49.14%	1.18%	0.82%	2.39%	3.00%	18.42%	8.42%	11.45%	6.24%	13.37%	15.58%	0.00%	5.14%	6.86%	11.67%	100.00%	100.00%	100.00%	100.00%	
AVG. DAY (2019 YTD):		1.391 M.G.D.		2019		Springhouse wells		253.451 MGD		49.90%		267.979 MGD		52.95%							
AVG. DAY (2020 YTD):		1.387 M.G.D.		2020		Firwood wells		254.432 MGD		50.10%		238.107 MGD		47.05%							

Table 4 below shows a comparison of the water resources needed to meet the City's demands in 2019 and 2020.

**TABLE 4  
WATER RESOURCE RECORD**

<b>Location</b>	<b>2019 Gallons</b>	<b>2019%</b>	<b>2020 Gallons</b>	<b>2020%</b>
Oakwood WTPs	461,177,000	100%	456,549,000	99.71%
Dayton/Shroyer	0	0%	1,345,000	0.29%
Dayton/Springhouse	0	0%	0	0%
County/Fairmont	0	0%	0	0%
<b>TOTALS:</b>	461,177,000	100%	457,894,000	100%

There was a decrease in demand of 3,283,000 gallons of water in 2020 compared to 2019 (0.72%). Table 5 on the next page shows the comparison in total gallons pumped to the system per month for 2019 and 2020.

## **V. MAINTENANCE**

The following is a summary of the larger maintenance projects that took place in 2020.

January:      Cleaned #2 salt bin 120 Springhouse WTP  
                   Cleaned #2 salt bin at 210 Shafor WTP  
                   Installed LED bulbs at 210 Shafor WTP

February:     Replaced HSP #3 at 120 Springhouse WTP  
                   Cleaned #1 salt bin at 210 Shafor  
                   Replaced raw water line in filter building at 210 Shafor WTP

March:         Installed flow meters at 120 Springhouse WTP  
                   Replaced drain lines in filter plant at 210 Shafor WTP  
                   Replaced wiring in well #6 panel at 210 Shafor WTP

April:          Installed VFD cabinet at 120 Springhouse WTP  
                   Installed new flow meters at 210 Shafor WTP  
                   Replaced well #7 PLC at 210 Shafor WTP  
                   Installed junction box well #5 at 210 Shafor WTP

May:            Replaced 2" PRV at 120 Springhouse WTP  
                   Replaced HSP #2 at 120 Springhouse WTP

June:           Installed fan VFD #3 at 120 Springhouse WTP

July:            Replaced well #8 at 210 Shafor WTP

August:        Repaired wires VFD #2 at 120 Springhouse WTP

September:   Installed well #6 pump at 210 Shafor WTP  
                   Installed new PLC at water tower

October:       Installed new antenna well #7 at Shafor WTP

November:    Replaced brine pump at 210 Shafor WTP

December:    Rebuilt aqua-matic valves unit #3 at 120 Springhouse WTP  
                   Cleaned #1 salt bin at 120 Springhouse WTP

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.



TABLE 5

CITY OF OAKWOOD WATER DEPARTMENT  
MONTHLY PUMPAGE TO SYSTEM RECORD

YEAR: 2020  
MONTH: December

MONTH	SPRINGHOUSE		FIRWOOD		DAYTON/SHROYER		FAIRMONT		DAYTON/SPRING.		MONTHLY TOTAL		ANNUAL TOTAL	
	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020	2019	2020
JANUARY	15.721	18.277	14.971	14.942	0.000	0.000	0.000	0.000	0.000	0.000	30.692	33.219	30.692	33.219
FEBRUARY	13.854	16.427	15.812	15.507	0.000	0.085	0.000	0.000	0.000	0.000	29.666	32.019	60.358	65.238
MARCH	19.158	20.375	16.120	14.992	0.000	0.000	0.000	0.000	0.000	0.000	35.278	35.367	95.636	100.605
APRIL	23.021	15.958	11.399	17.848	0.000	0.000	0.000	0.000	0.000	0.000	34.420	33.806	130.056	134.411
MAY	23.765	20.797	14.506	16.893	0.000	0.000	0.000	0.000	0.000	0.000	38.271	37.690	168.327	172.101
JUNE	23.356	21.999	18.040	21.507	0.000	0.000	0.000	0.000	0.000	0.000	41.396	43.506	209.723	215.607
JULY	27.046	25.918	21.425	25.436	0.000	0.000	0.000	0.000	0.000	0.000	48.471	51.354	258.194	266.961
AUGUST	29.806	25.476	20.376	20.844	0.000	0.816	0.000	0.000	0.000	0.000	50.182	47.136	308.376	314.097
SEPTEMBER	26.141	27.977	25.084	18.928	0.000	0.444	0.000	0.000	0.000	0.000	51.225	47.349	359.601	361.446
OCTOBER	18.561	23.147	20.551	12.205	0.000	0.000	0.000	0.000	0.000	0.000	39.112	35.352	398.713	396.798
NOVEMBER	2.344	16.795	27.461	12.876	0.000	0.000	0.000	0.000	0.000	0.000	29.805	29.671	428.518	426.469
DECEMBER	16.382	17.433	16.277	13.992	0.000	0.000	0.000	0.000	0.000	0.000	32.659	31.425	461.177	457.894
ANNUAL	239.155	250.579	222.022	205.970	0.000	1.345	0.000	0.000	0.000	0.000	461.177	457.894	461.177	457.894
TOTALS	51.86%	54.72%	48.14%	44.98%	0.00%	0.29%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%	100.00%	100.00%

2019 Summary	
	M.G.
Oakwood:	461.177 100.00%
Dayton:	0.000 0.00%
County:	0.000 0.00%
TOTAL:	461.177 100%

2019 Avg. per day 1.263 MGD

2020 Summary	
	M.G.
Oakwood:	456.549 99.71%
Dayton:	1.345 0.29%
County:	0.000 0.00%
TOTAL:	457.894 100%

2020 Avg. per day: 1.255 MGD

## VI. BUDGET/FINANCES

The 2020 budget allocation for Oakwood Water Production was \$645,249.53. In 2020, the Oakwood Water Production Unit spent \$624,129.21 toward the production of the City's water. This computes to an average cost of \$1,233.24 per million gallons pumped from the city's eight wells in 2020, up from \$1,163.83 per million gallons in 2019. The cost per million gallons will fluctuate up or down depending on the total water demand and maintenance costs for the year. 2020 had an average water demand lower than 2019 but had a warmer and drier end to the 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

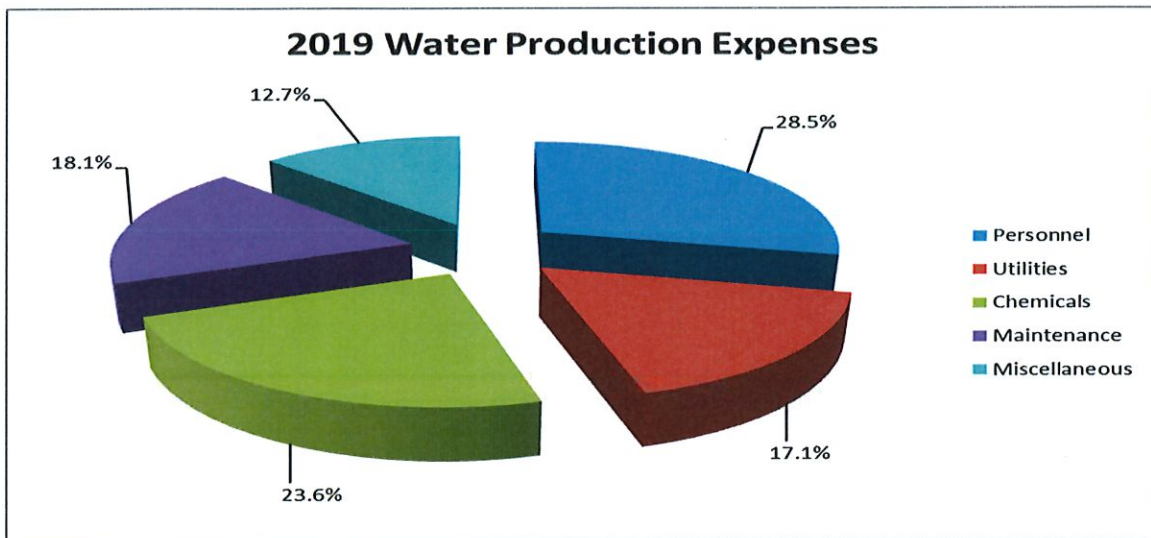
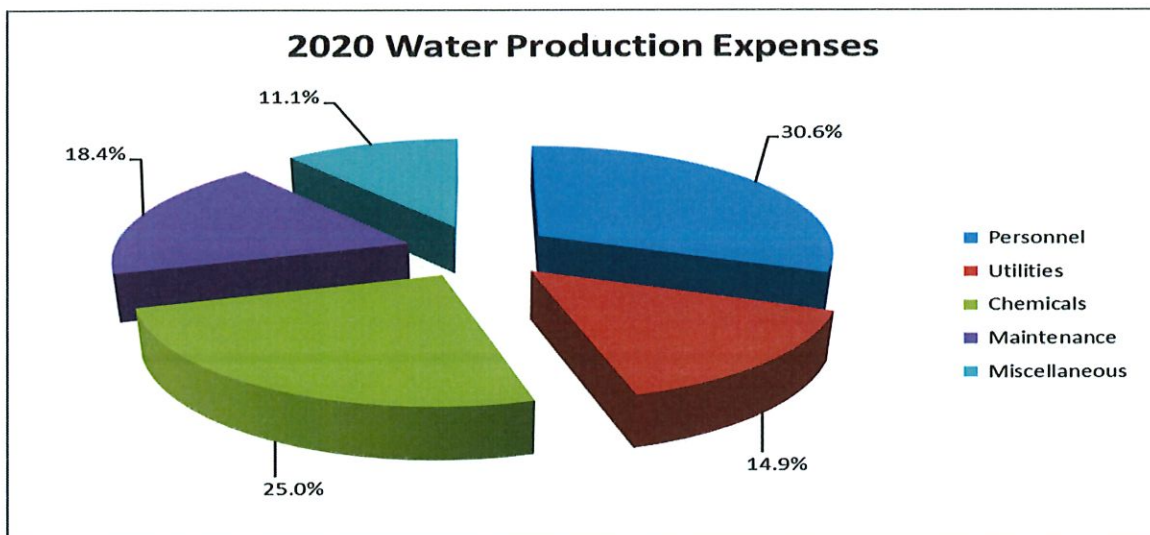


CHART 4



Personnel costs were \$191,047.65 for the year representing a 13.51% increase from 2019. Utility costs were \$92,906.70 which includes electric and natural gas representing an 8.29% decrease from 2019. Chemical costs were \$155,851.25 representing an 11.91% increase over 2019. 1,187 tons of salt compared to 1,038 tons in 2019 and 3,870 gallons of sodium hypochlorite compared to 3,815 gallons in 2019 were used to treat the water.

Maintenance costs were \$115,014.11 representing a 7.33% increase compared to 2019.

## **VII. CONCLUSION**

In reviewing our water system, 2020 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 OEPA NPDES Surveys were conducted in February 2019 and no violations were found. The next survey will be conducted in 2024.

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. In November 2019 we replaced the original softening media in the three filters at 120 Springhouse Road. All process valves on these three units were completely rebuilt in 2020 and 2021.

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