City of Findlay

Water Treatment Plant

&

Supply Reservoir

2018 Annual Report

CITY OF FINDLAY

Annual Report for 2018

The annual report of the operations of the Water Treatment Plant and Supply Reservoir for the year ending December 31,2018 is respectfully submitted herewith.

The City of Findlay Water Treatment Plant provides the citizens of Findlay and the surrounding area with high quality, pleasant tasting drinking water that meets or exceeds the parameters set by the Ohio EPA. The consumer costs have not increased on water since 2011.

The raw water supply for the City of Findlay is one of the most outstanding in the State of Ohio. The Water Department spends a great deal of time and resources monitoring the water quality in the reservoir. The quality of water is the primary focus of the treatment plant. Even with the challenges that the treatment plant faced in 2018 with taste and odor the team rose to the occasion and minimized the effects as quickly as possible.

The following list highlights just a few of the changes within the Water Treatment Plant and Supply Reservoir in 2018.

1. Replaced the sodium hypochlorite tanks
2. Replaced lime silo piping
3. Replaced discharge screens at Reservoir #1
4. Became a large system from Ohio EPA
5. Replaced concrete behind chemical feed building
6. Engineered a second sodium permanganate feed line for Reservoir #2
7. Replaced a large slope mower for the reservoir dikes
8. Selected a partner for the SCADA upgrade project
9. Selected a partner for the fire alarm upgrade project
10. Selected a partner for the roof replacement program
11. Began testing for MIB/ Geosmin at reservoirs
12. Purchased data Sonde to analyze water at reservoir in real time
13. Purchased new microscope for in-house algae study and analysis

The City of Findlay is blessed with a very dedicated and well educated staff who work diligently to ensure that the water quality is of the highest caliber. The following is the list of the current staff of the Water Treatment Plant and Supply Reservoir.

Water Treatment Plant Employees

Name:	Position	Year Hired
Jason Phillips	Superintendent, Class III	2017
Brett Young	Supervisor, Class III	2000
Tim Foust	Operator, Class I	2000
Tim Couch	Operator, Class III	2003
Jeremy Carter	Operator, Class III	2013
Dan Ward	Operator, Class II	2015
Ray Stelmaszak	Operator, Class I	2016
Ryan Cates	Operator, OIT I	2016
Mat Otto	Operator, Class I	2017
Rick Parker	Lab Tech I, Class III	2001
Dean Hoge	Assistant Operator	1989
Brian Egts	Maintenance Mechanic III	1990
Brad Eblen	Maintenance Mechanic I	1991
Randy Zacharias Sr.	Maintenance Mechanic II	2011
Jennifer Niederkohr	Administrative Asst.	2011

Supply Reservoir

Rich Cap	Maintenance Mechanic I	2001

The water treatment plant added additional maintenance personnel to the staff. This opened up an operators position allowing Ryan Cates to join the plant staff and Mat Otto to begin to work with the maintenance staff. These changes will allow for more flexibility in coverage and an opportunity for the younger staff to begin to learn and grow. The following is a breakdown of just some of the accomplishments that occurred in 2018 by the Treatment Plant and Supply Reservoir personnel. Compliments go out to the staff on their determination and creativity in accomplishing so much.

Lab Items:

- Tested 372 additional bacteria samples for other public water systems, private individuals, new mains, new fire lines, and customer concerns
- Tested 680 bacteria samples for compliance with current OEPA requirements
- Collected 54 samples for algae analysis
- Collected 13 QPCR samples for HAB screening
- Collected 28 samples for microcystin analysis
- Collected 30 lead and copper samples
- Collected 14 copper tap samples due to copper treatment at reservoir
- Completed all weekly, monthly, and annual quality control checks on analytical equipment as well as verifications of all inline meters throughout the Treatment Plant

Maintenance Items:

- ❖ Installed new HVAC units around plant
- ❖ Renovated break room at treatment plant
- ❖ Installed new hypochlorite line to post filtration injection point
- ❖ Replaced refrigeration unit for CO2 tank
- ❖ Installed second large carbon pump
- ❖ Installed coupon racks for corrosion study
- ❖ Worked with Computer Services on new phone system

a. Ran phone lines
b. Installed antennas
c. Ran power for ethernet switch
d. Ran new cable to new gate controlled
e. Ran fiber optic line from billing office to plant
f. Installed and mounted new phones

- ❖ Changed flash mixer and gearbox
- ❖ Installed duck bills on tank overflows
- ❖ Laser aligned high service pump #3
- ❖ Hauled 1061 loads of lime to drying beds
    a. Hauled 58 loads of lime directly to fields

Reservoir Items:

- o Treated Reservoir #1 with 1500 lbs and reservoir #2 with 6000 lbs copper sulfate
- o Treated Reservoirs #1 with 8000 lbs with Green Clean Pro
- o Treated transfer with 2400 lbs of Green Clean Pro and 794 lbs of PAC
- o Set up chemical feed system at discharge of Reservoir #2
- o Worked with lab on sampling and algae control
- o Monitored river water quality and filled reservoirs
- o Cleaned up graffiti
- o Compiled Sonde data to trend algae growth
- o Repaired reservoir house for tenant
- o Training on new slope mower

Goals for 2019

- Complete rehab of transfer line between Reservoir 1 and 2
- Increase sewer capacity behind Treatment Plant
- Replace 2-CO_2 tanks and feed system
- Rehabilitate chemical room floor
- Start GIS data collection at treatment plant
- Utilize drone to optimize the chemical application in the reservoirs
- Upgrade the Treatment Plant SCADA system
- Repair Filter #9 & #12 piping
- Begin planning for new raw water line
- Complete corrosion control plan
- Install stationary Data Sonde at Reservoir #1
- Repair concrete hatches on clearwell
- Paint vents and hatches around campus
- Begin the meter replacement project

It is an honor to work with the dedicated staff of the Water Department. Their commitment to the City of Findlay and to water quality is greatly appreciated as well as their countless hours of service. None of this would be possible without the support of City Council and the Mayor and her administration. Their continued confidence in the Water Department makes it a pleasure to serve the City of Findlay.

Respectfully Submitted

Jason W. Phillips

Water Treatment Plant Superintendent

Divisions: *Reservoir, Treatment, Distribution, Utility Billing*

WATER DEPARTMENT
Superintendent Jason Phillips

FINANCIAL VISION

BUDGET		2016 actual	2017 actual	2018 projection	Original 2018 request	2019 request	$ change from 2018 request to 2019 request	% change from 2018 request to 2019 request
Supply Reservoir	Personal Services	$ 79,062	$ 84,490	$ 89,198	$ 100,122	$ 123,870	$ 23,748	23.72%
	Other	$ 207,311	$ 275,462	$ 390,705	$ 416,499	$ 523,923	$ 107,424	25.79%
Water Treatment	Personal Services	$ 997,925	$ 1,107,774	$ 1,146,135	$ 1,194,231	$ 1,319,818	$ 125,587	10.52%
	Other	$ 928,159	$ 947,960	$ 1,239,478	$ 1,268,027	$ 2,510,524	$ 1,242,497	97.99%
Water Distribution	Personal Services	$ 906,707	$ 1,019,847	$ 1,049,344	$ 1,130,203	$ 1,208,692	$ 78,489	6.94%
	Other	$ 402,806	$ 432,379	$ 647,744	$ 546,608	$ 659,891	$ 113,283	20.72%
Utility Billing	Personal Services	$ 577,449	$ 632,083	$ 711,718	$ 755,417	$ 695,457	$ (59,960)	-7.94%
	Other	$ 137,043	$ 171,375	$ 225,728	$ 225,109	$ 244,205	$ 19,096	8.48%

BUDGET HIGHLIGHTS

- Lime hauling and cleaning up spent lime beds
- Additional chemical for algae control
- Additional chemicals for taste and odor
- Rip rap at the reservoir
- Fire hydrant painting
- Proposed 2.25% wage increase

WATER FUND EXPENSES

STAFFING	2015	2016	2017	2018	2019
Reservoir	1	1	1	1	1
Water Treatment	13	14	14	15	15
Water Distribution	13	14	14	14	15
Utility Billing	10	9	9	9	9

OPERATIONS AND SERVICES

2018 CAPITAL IMPROVEMENT HIGHLIGHTS

- WD - Purchased hydro excavator, pug hug for hydrant cleaning, and 12 ton trailer
- WT - New hypochlorite tanks
- SR - New slope mower

2018 ACHIEVEMENTS

- Replaced silo piping
- New discharge screens on Reservoir #1
- Replaced concrete by solids contact units
- Selected Meter Replacement team
- Continued to replace lead service lines and update service line information
- Replaced waterlines in troubled areas
- Purchased microscope for in-house algae study
- Engineered second sodium permanginate feed line
- Assessment completed on distribution system

2019 OBJECTIVES

- Piping repair in 1965 filter gallery building
- Upgrade to new stationary data sonde at reservoir to provide real-time data
- Utilize drone to better treat reservoir for algae
- Continue painting fire hydrants
- Continue waterline replacement
- Complete overflow and rehab work at reservoir
- Replace roof over two sections of Water Treatment
- Rate study update
- Master Plan for the Water Treatment plant

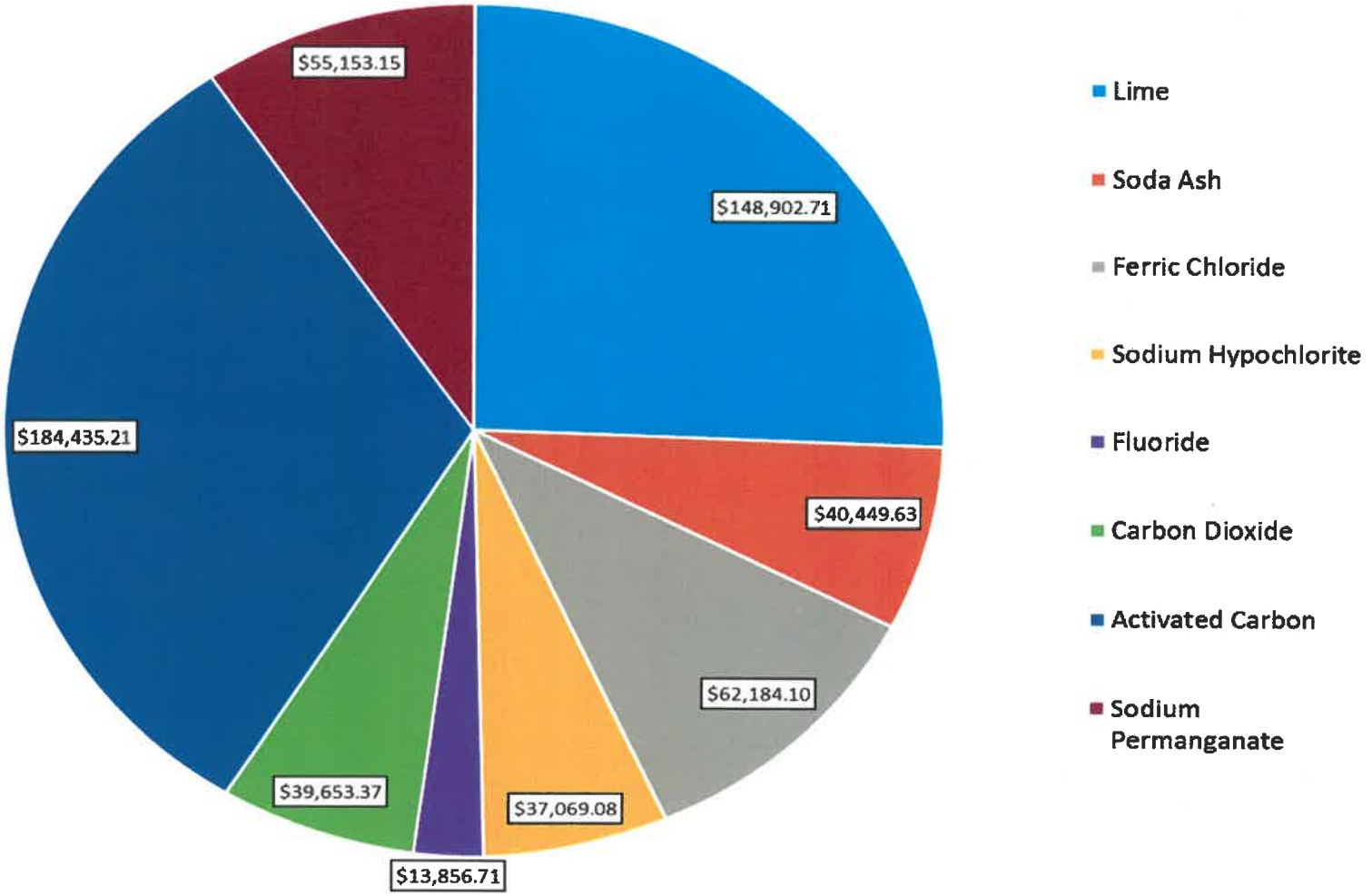
Water Treatment Expenses

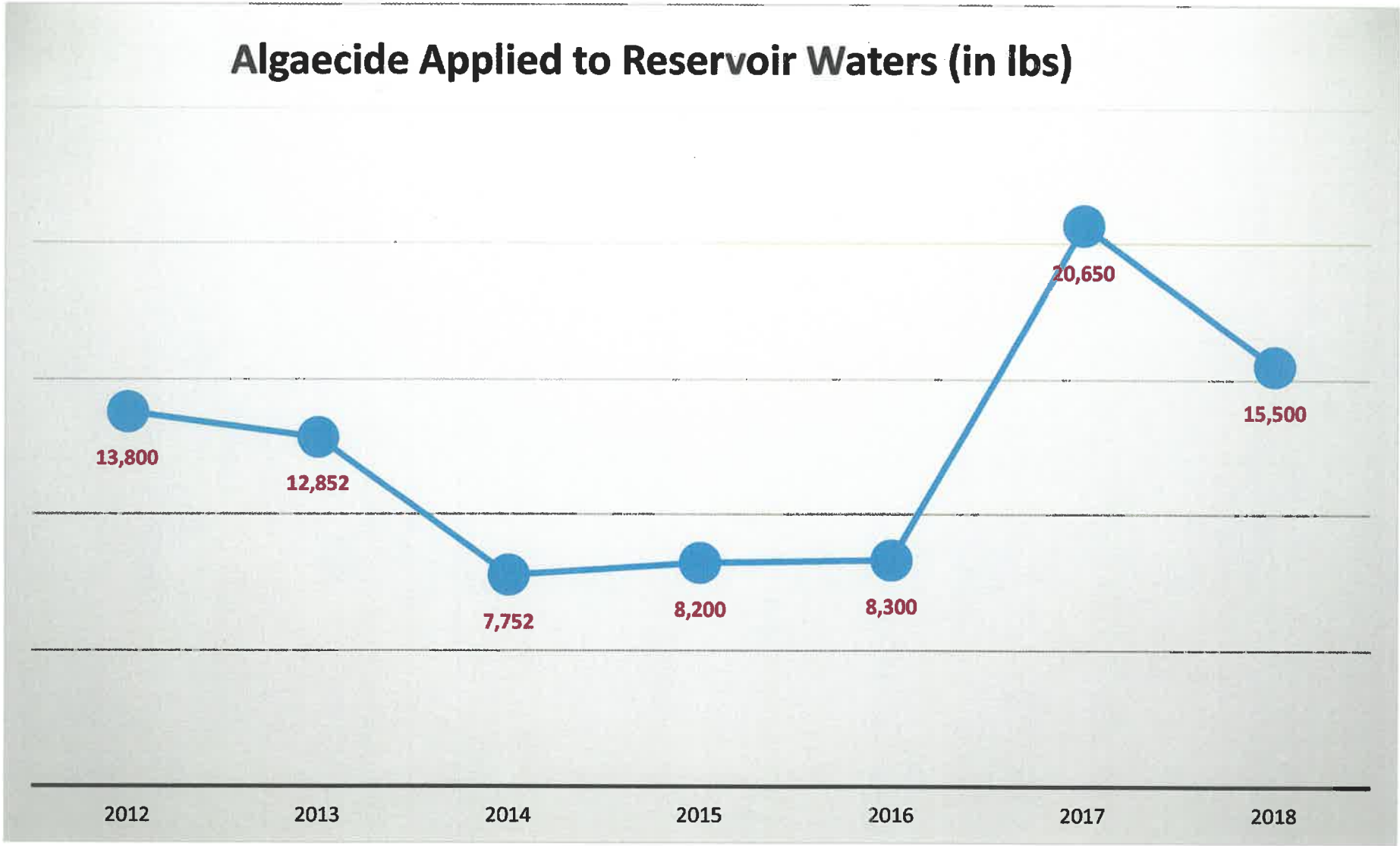
	2012	2013	2014	2015	2016	2017	2018
Wages	$ 788,696.00	$ 717,150.00	$ 688,792.00	$ 707,021.00	$ 762,139.00	$ 805,434.00	$ 813,694.00
Retirement Settlements	$ 160,945.00						
Benefits	$ 388,463.00	$ 329,426.00	$ 253,925.00	$ 231,284.00	$ 242,246.00	$ 307,431.00	$ 329,385.00
Operating	$ 389,093.00	$ 351,698.00	$ 445,237.00	$ 361,512.00	$ 461,188.00	$ 513,688.00	$ 647,146.00
Maintenance	$ 151,475.00	$ 95,083.00	$ 151,228.00	$ 120,859.00	$ 122,317.00	$ 126,823.00	$ 192,013.00
Utilities	$ 252,719.00	$ 225,925.00	$ 282,724.00	$ 255,431.00	$ 310,500.00	$ 273,163.00	$ 282,035.00
Capital	$ 6,437.00		$ 50,756.00	$ 59,045.00	$ 40,127.00	$ 7,390.00	$ 7,035.00
Others	$ 95,263.00	$ 91,654.00	$ 35,689.00	$ 84,060.00	$ 59,286.00	$ 38,831.00	$ 44,495.00
Total	**$ 2,233,091.00**	**$ 1,810,936.00**	**$ 1,908,351.00**	**$ 1,819,212.00**	**$ 1,997,803.00**	**$ 2,072,760.00**	**$ 2,315,803.00**

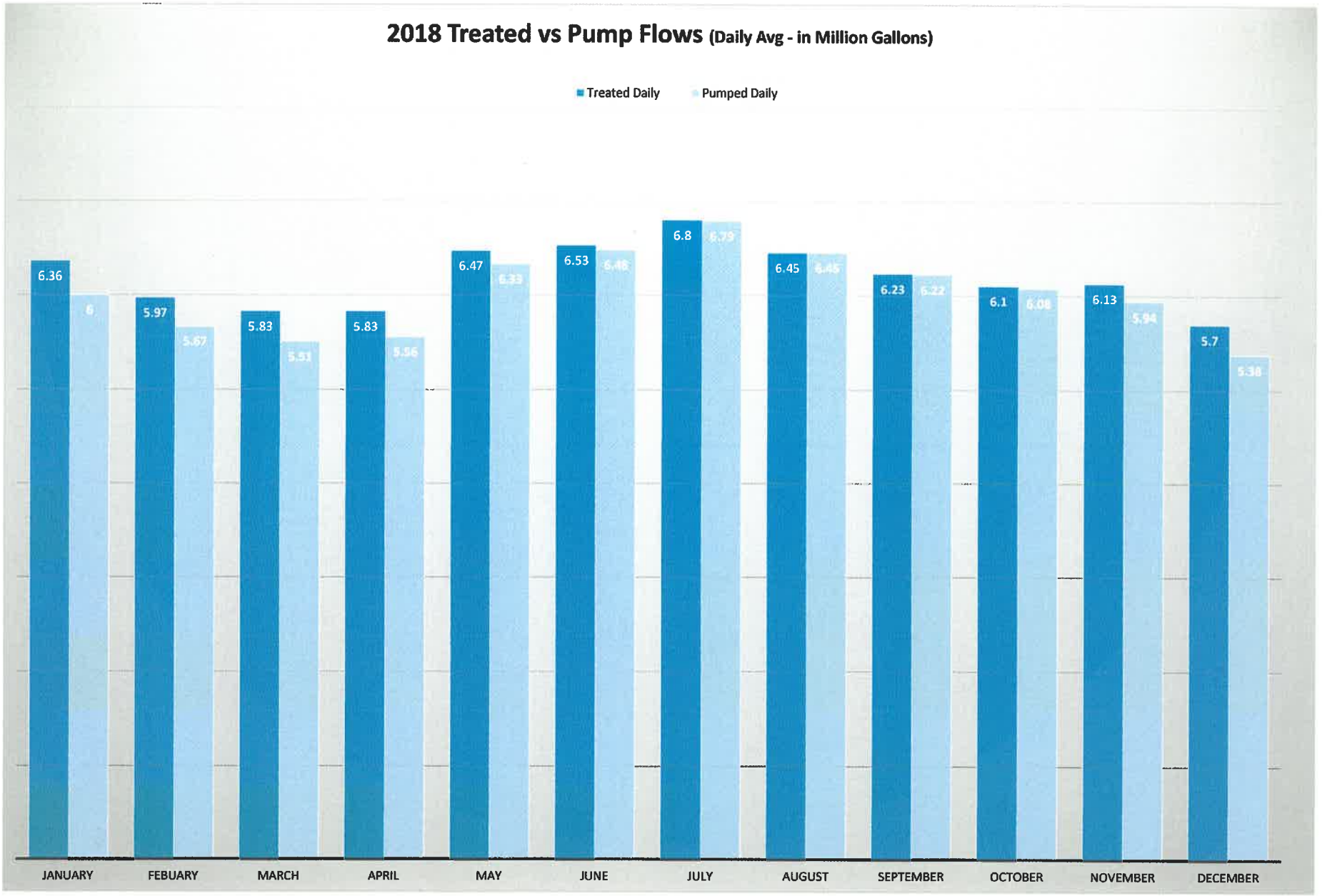
Supply Reservoir Expenses

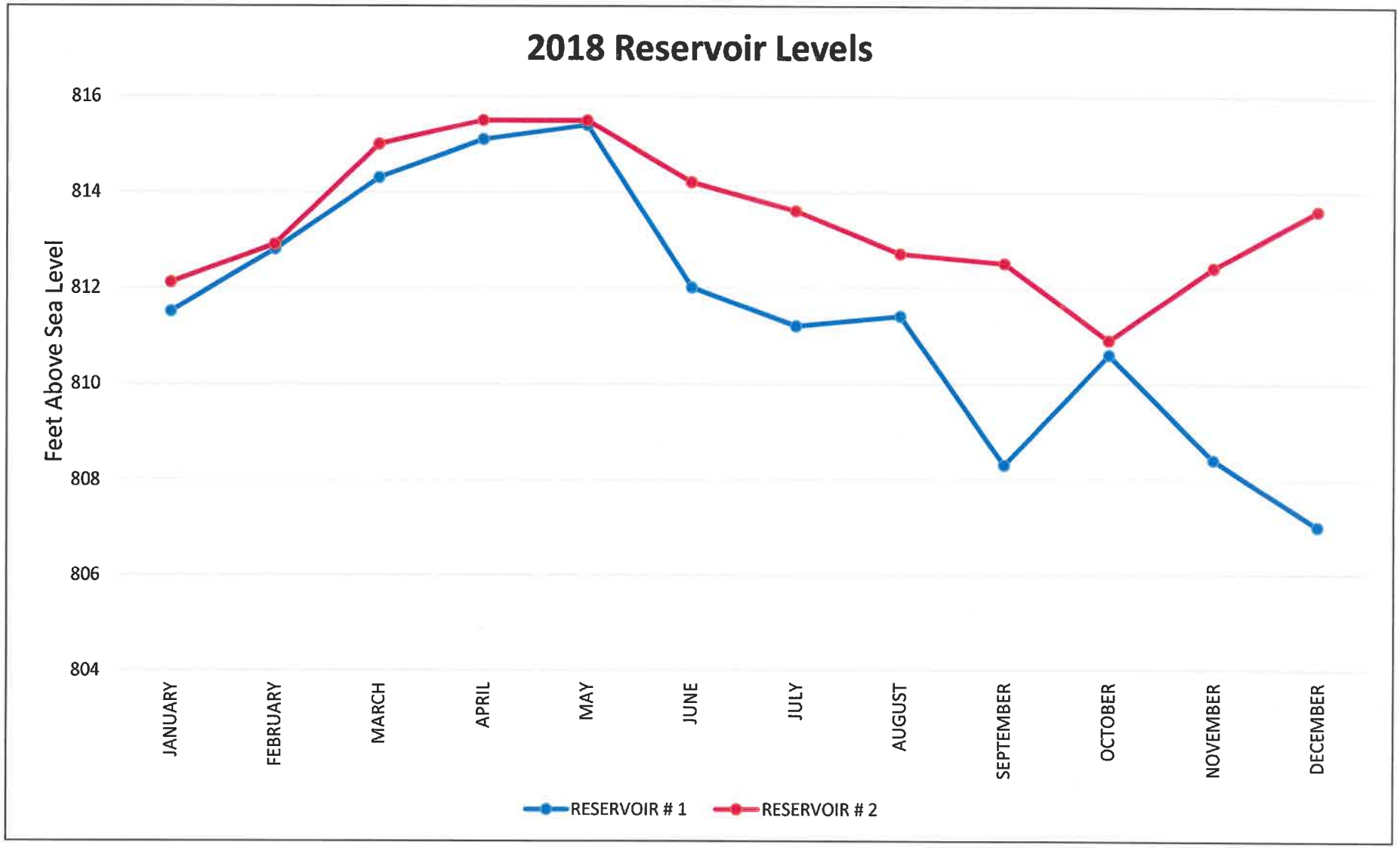
Wages	$ 47,580.00	$ 49,664.00	$ 50,056.00	$ 54,539.00	$ 57,098.00	$ 56,118.00	$ 60,165.00
Retirement Settlements							
Benefits	$ 32,227.00	$ 33,212.00	$ 23,693.00	$ 23,561.00	$ 22,451.00	$ 28,482.00	$ 27,608.00
Operating	$ 115,131.00	$ 130,931.00	$ 67,175.00	$ 79,228.00	$ 77,864.00	$ 133,767.00	$ 76,263.00
Maintenance	$ 141,596.00	$ 57,816.00	$ 28,314.00	$ 6,107.00	$ 27,543.00	$ 25,057.00	$ 126,065.00
Utilities	$ 94,624.00	$ 96,982.00	$ 90,257.00	$ 99,524.00	$ 104,233.00	$ 109,637.00	$ 113,672.00
Capital		$ 5,812.00			$ 51,011.00	$ 26,226.00	$ 193,708.00
Others	$ 28,539.00	$ 12,342.00	$ 21,852.00	$ 10,544.00	$ 10,118.00	$ 7,563.00	$ 8,270.00
Total	**$ 459,697.00**	**$ 386,759.00**	**$ 281,347.00**	**$ 273,503.00**	**$ 350,318.00**	**$ 386,850.00**	**$ 605,751.00**

2018 Chemical Usage Costs




Algaecide Applied to Reservoir Waters (in lbs)
13,800
12,852
7,752
8,200
8,300
20,650
15,500
2012
2013
2014
2015
2016
2017
2018


2018 Treated vs Pump Flows (Daily Avg - in Million Gallons)
Treated Daily
Pumped Daily
6.36
6
5.97
5.67
5.83
5.51
5.83
5.56
6.47
6.33
6.53
6.48
6.8
6.79
6.45
6.45
6.23
6.22
6.1
6.08
6.13
5.94
5.7
5.38
JANUARY
FEBUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER


2018 Reservoir Levels
Feet Above Sea Level
816
814
812
810
808
806
804
JANUARY
FEBRUARY
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
OCTOBER
NOVEMBER
DECEMBER
RESERVOIR # 1
RESERVOIR # 2

City of Findlay Water Department
Drinking Water Consumer Confidence Report For 2017

Superintendent	Mayor	Service Director
Jason Phillips	Lydia L. Mihalik	Brian A. Thomas

Introduction

The following report has been prepared to provide information to you, the consumer, on the quality of our drinking water. Included within this report is general health information, water quality test results, how to participate in decisions concerning your drinking water and water system contacts.

Source water information and assessment

Our water source is surface water pumped from the Blanchard River into the Findlay Reservoir, which is located three miles southeast of the water treatment plant. For the purpose of source water assessments, in Ohio all surface waters are considered susceptible to contamination. By their nature, surface waters are readily accessible and can be contaminated by chemicals and pathogens, which may rapidly arrive at the public drinking water intake with little warning or time to prepare. The City of Findlay's drinking water source protection area contains potential contaminant sources such as agricultural runoff, industrial storm water, gas station runoff, home construction, animal feed lot runoff, gas lines and gas and oil wells, wastewater treatment discharges, cemeteries, airports, silage, farm machinery repair, pesticide/fertilizer/petroleum storage areas, pasture, closed and inactive landfills, roadways and railways.

We treat your water using lime/soda softening, coagulation, sedimentation, stabilization, fluoridation, disinfection, and filtration to remove or reduce harmful contaminants in the source water; however, no single treatment technique can address all potential contaminants. The potential for water quality impacts can be further decreased by implementing measures to protect the Blanchard River. Information that is more detailed is in the City of Findlay's Drinking Water Source Assessment Report, which can be obtained by calling the Findlay Water Department at 419-424-7193.

Sources of contamination to drinking water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include: (A) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; (B) Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming; (C) Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; (D) Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems; (E) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

Who needs to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ

transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infection. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

About your drinking water

The EPA requires regular sampling to ensure drinking water safety. Our water department conducted sampling for bacteria, inorganic, synthetic organic, and volatile organic contaminants during 2017. Samples were collected for 50 different contaminants, most of which were not detected in the City of Findlay water supply. In 2017, we tested Raw water for microcystins and had no detections. The Ohio EPA requires us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, are more than one year old.

Listed below is information on those contaminants that were found in the City of Findlay drinking water.

Contaminants (Units)	MCLG	MCL	Level Found	Range of Detections	Violation	Sample Year	Typical Source of Contaminants
Bacteriological							
Total Organic Carbon (ppm)	NA	TT	2.3	2.0-3.8	NO	2017	Naturally present in the environment.
The value reported under "Level Found" for Total Organic Carbon (TOC) is the lowest ratio between percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than one (1) indicates that the water system is in compliance with TOC removal requirements. A value of less than one (1) indicates a violation of the TOC removal requirements.							
Turbidity (NTU)	NA	TT	0.16	0.05 – 0.16	NO	2017	Soil runoff.
Turbidity (% meeting standard)	NA	TT	100%	100% – 100%	NO	2017	
Turbidity is a measure of the cloudiness of water and is an indication of the effectiveness of our filtration system. The turbidity limit set by the EPA is 0.3 NTU in 95% of the daily samples and shall not exceed 1 NTU at any time. As reported above, the Findlay Water Department's highest recorded turbidity result for 2017 was 0.16 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100%.							
Inorganic Contaminants							
Barium (ppm)	2	2	0.010	NA	NO	2017	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Fluoride (ppm)	4	4	0.96	0.70 – 1.17	NO	2017	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Nitrate (ppm)	10	10	0.84	<0.10 – 0.84	NO	2017	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Lead and Copper							
Contaminants (Units)	**Action Level (AL)**	**Individual Results over the AL**		**90% of test levels were less than**			
Lead (ppb)	15	NA		2.5	NO	2016	Corrosion of household plumbing systems; Erosion of natural deposits.
	Zero out of 30 samples have lead levels that exceeded the Action Level of 15 ppb.						
Copper (ppm)	1.3	NA		0.094	NO	2016	Corrosion of household plumbing systems; Erosion of natural deposits.
	Zero out of 30 samples have copper levels that exceeded the Action Level of 1.3 ppm.						
Synthetic Organic Contaminants including Pesticides and Herbicides							
Atrazine (ppb)	3	3	0.18	NA	NO	2017	Runoff from herbicide used on row crops.
Simazine (ppb)	4	4	<0.05	NA	NO	2017	Runoff from herbicide used on row crops.
Disinfection Byproducts							
Haloacetic Acids (HAA5) (ppb)	NA	60	22.1	12.4 – 30.7	NO	2017	By-product of drinking water chlorination.
Total Trihalomethane (TTHM) (ppb)	NA	80	59.4	31.4 – 84.6	NO	2017	By-product of drinking water chlorination.
Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems and may have an increased risk of getting cancer.							
Residual Disinfectants							

Total Chlorine (ppm)	MRDLG = 4	MRDL = 4	1.5	1.4 – 1.7	NO	2017	Water additive used to control microbes.
Unregulated Contaminant Monitoring Rule 3							
	Entry Point		**Distribution**				
	Level Found	**Range of Detections**	**Level Found**	**Range of Detections**			
Chlorate (ppb)	37.9	37.9	111	111	NO	2015	
Chromium 3 (ppb)	0.60	0.60	0.73	0.73	NO	2015	
Chromium-6 (ppb)	0.43	0.43	0.44	0.44	NO	2015	
Molybdenum (ppb)	7.8	7.8	8.3	8.3	NO	2015	
Strontium (ppb)	1200	1200	1300	1300	NO	2015	
Vanadium (ppb)	0.29	0.29	0.34	0.34	NO	2015	
Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted							

Lead Educational Information

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Findlay Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 800-426-4791 or at http://www.epa.gov/safewater/lead.

License to Operate (LTO) Information

In 2017 we had an unconditioned license to operate our water system.

How do I participate in decisions concerning my drinking water?

If you have any questions about this report or concerning your water utility, please contact Jason Phillips by calling (419) 424-7193 or by writing to 110 North Blanchard Street, Findlay, OH 45840. We want our valued customers to be informed about their water utility. You can attend regular public meetings on the first and third Tuesday of each month, at 7:30 p.m., in Council Chambers in the Municipal Building, at 318 Dorney Plaza.

Definitions of some terms contained within this report

- Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- Maximum Contaminant level (MCL): The highest level of contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- Parts per Million (ppm) or Milligrams per Liter (mg/L) are units of measure for concentration of a contaminant. A part per million corresponds to one second in a little over 11.5 days.
- Parts per Billion (ppb) or Micrograms per Liter (µg/L) are units of measure for concentration of a contaminant. A part per billion corresponds to one second in 31.7 years.
- Picocuries per Liter (pCi/L): A measure of radioactivity.
- Nephelometric Turbidity Unit (NTU): A measure of water cloudiness.
- Not Applicable (NA)
- Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
- Maximum Residual Disinfectant Level Goal (MRDLG): The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- The "<"symbol: A symbol which means less than. A result of <5 means that the lowest level that could be detected was 5 and the contaminant in that sample was not detected.
- Microcystins: Liver toxins produced by a number of cyanobacteria. Total microcystins are the sum of all the variants/congeners (forms) of the cyanotoxin Microcystin.

For information regarding backflow prevention, visit our web page at:
http://www.findlayohio.com/government/city-departments/utilities/water-distribution/backflow-prevention-program/