The City of Springfield

WATER TREATMENT

2015
ANNUAL REPORT

Water Treatment Plant

Springfield Water Treatment Plant, 201 Eagle City Road

The City of Springfield, Ohio's first public water system was established in 1882. In 1958 the Eagle City Road Water Treatment Plant was constructed, replacing the Pump House Road treatment facility. The Water Treatment Plant has a 36 million gallon per day (MGD) peak design capacity and provides an average of 11 MGD of potable water to the citizens of Springfield, Ohio and surrounding communities. The facility is classified as a Class III Public Water System by the Ohio Environmental Protection Agency (OEPA).

Source water for the plant is obtained from the Mad River Buried Valley Aquifer. A well field along Mad River at Eagle City Road consists of twelve separate wells with depths ranging from 100 to 115 feet. Each well has a pumping capacity of 3.5 million gallons of ground water per day. Once at the plant, the raw water is treated in two parallel treatment trains, 100 feet wide by 465 feet long, each capable of handling 18 MGD.

Water traveling through the basins receives treatment through well established and accepted industry standards. These treatments include lime for softening, ferric sulfate for removing excess lime and suspended particles, chlorine for disinfection, and sodium hexametaphosphate for corrosion control and to prevent calcium deposits in the distribution system.

The final stage of the treatment process is filtration, which removes the finest particles before water is pumped to the distribution system. This process involves eight mono

media rapid sand filters, 32 feet wide by 32 feet long, each capable of filtering 4.5 MGD. Six high service pumps, with design capacities ranging from 4,200 to 9,800 gallons per minute (GPM), are used to deliver water to the system.

Both underground and elevated storage are utilized to ensure uniform system pressure and emergency reserves. The largest storage is the five million gallon underground tank at the Water Treatment Plant. Elevated storage tanks throughout the system include:

- A two million gallon tank at Greenmount Avenue and Main Street
- A one million gallon tank on Leffel Lane near Clark State Community College
- A half million gallon tank on Bird Road at Reid Park Golf Course
- A one million gallon tank on Bird Road at Reid Park Golf Course

Superintendent Allen Jones, an OEPA Certified Class III Water Supply Operator, manages the Water Treatment Plant under the direction of Operations Engineer Timothy Weaver, P.E., and Service Director Christopher Moore. Sixteen full-time employees, including an Assistant Superintendent, two Laboratory Technicians, seven Plant Operators, three Plant Maintenance Mechanics, and two Plant Electrical Technicians support plant operations. The plant is staffed 24 hours a day, 7 days a week by OEPA certified Operators.

For additional information contact the following:

Contact: Allen Jones – Plant Superintendent
Telephone: 937-525-5880
Fax: 937-525-5886
Email: ajones@springfieldohio.gov

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FOREWORD

This report summarizes the operations of the Springfield Water Treatment Plant for the year 2015. It is for use by professionals, plant personnel, and the general public. The primary function of the Water Treatment Plant is to provide the City of Springfield an uninterrupted supply of clean, safe, potable water that complies with all the Drinking Water Regulations, as mandated by the Safe Drinking Water Act, at the most reasonable cost.

The safety of all citizens is considered when providing ample water pressure for residential, commercial, industrial, and emergency needs. The well being of the Springfield community is dependent upon the plant personnel to exercise their knowledge, skills, resourcefulness, reliability, and integrity to accomplish this function. The scope of this function is very broad. Not only must we meet current day demands, we also have the responsibility of ensuring that the community has a safe and abundant water supply for generations to come.

The Water Treatment Plant delivered a total of **3,770,710,000** gallons of water in 2015 at a chemical cost of **$125.66** per million gallons. The total cost associated with treating and pumping the water supply was **$576.23** per million gallons. Ongoing laboratory testing and adjustments of chemical feed rates to optimize the treatment process allows us to be as cost efficient as possible and still maintain the quality of our drinking water.

A Consumer Confidence Report is provided to all water customers each year. This report includes information such as sampling results that have occurred and other mandatory EPA language. We strive to meet or exceed all of the EPA regulations.

We, the plant staff, will continue our efforts in 2016 to provide the City of Springfield and its water customers an economical, clean, safe, and high quality water supply.

Respectfully submitted,

Allen Jones

Water Plant Superintendent

SPRINGFIELD WATER TREATMENT PLANT

PRIMARY FUNCTION

The following four sections within the Water Treatment Plant accomplish our primary function:

ADMINISTRATION

Oversee operation and maintenance needs, scheduling, guidance, and staff to plan projects for the total operation and function of the Water Treatment Plant. Ensure the most effective use of all resources to meet all of our goals and objectives.

OPERATIONS

Operate the plant in the most efficient manner to produce the highest quality water possible. Remain alert to system changes and adjust plant output accordingly.

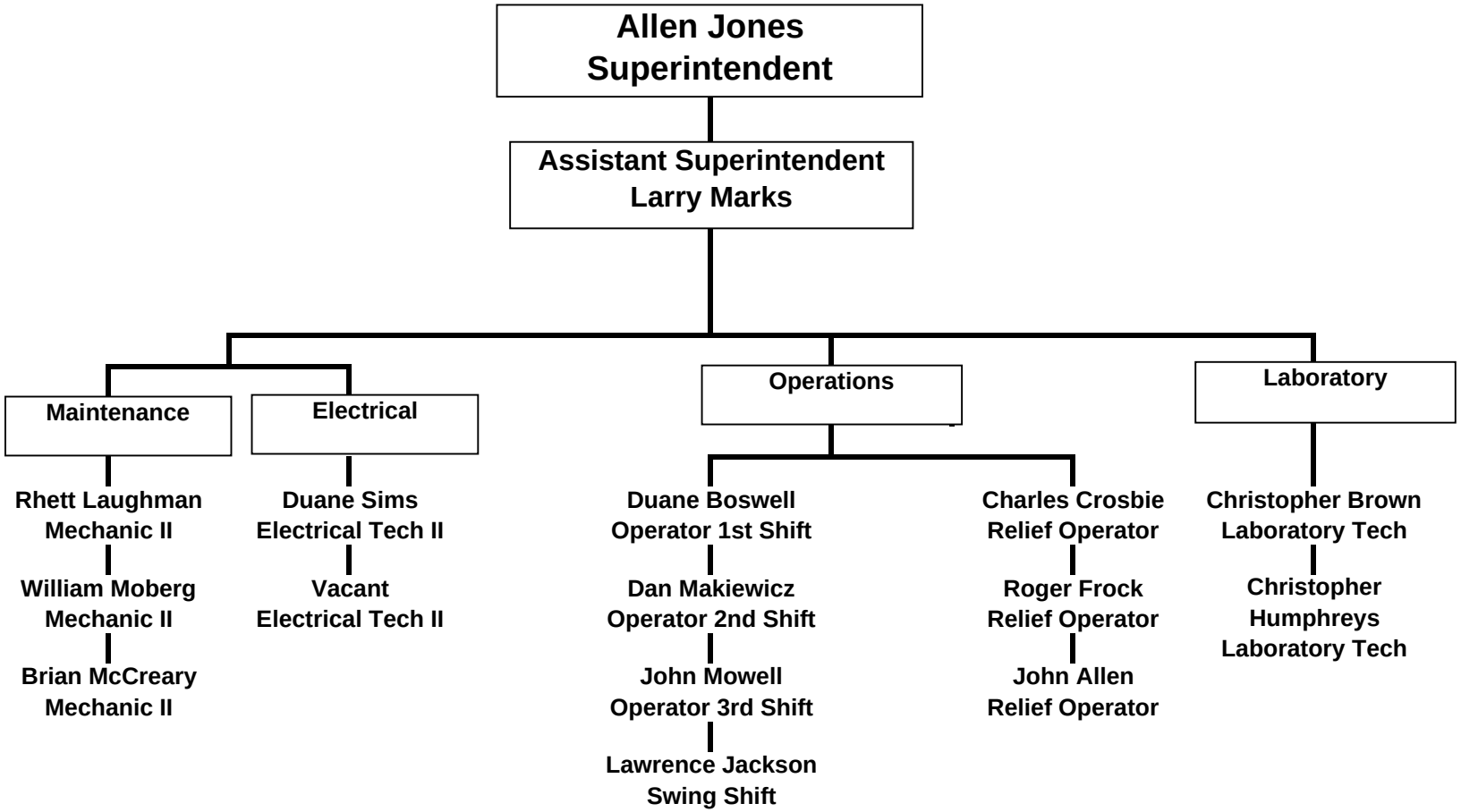
MAINTENANCE

Establish a comprehensive maintenance program that includes preventive maintenance, response to all emergency repairs as needed, and maintenance of all buildings and grounds.

LABORATORY

Collect and analyze water samples for plant quality control and to ensure the treatment facility remains in compliance with all EPA regulations. Maintain analytical data to ensure proper operation of the treatment process and report to the OEPA accordingly. Provide laboratory services and assistance to other local water systems and local residents with private wells.

SPRINGFIELD
WATER TREATMENT PLANT
ORGANIZATIONAL CHART



James Cooley resigned 2015

OHIO EPA

CERTIFIED PLANT PERSONNEL

EMPLOYEE	POSITION	CERTIFICATION
Allen Jones	Superintendent	Class III (WS)-MMO-MUG
Larry Marks	Assistant Superintendent	Class II (WS)- MMO-MUG
Christopher Brown	Lab Tech	Class III (WS)- MMO-MUG Wet Chemistry
Christopher Humphreys	Lab Tech	Class I (WS)- MMO-MUG Wet Chemistry
Charles Crosbie	Operator	Class III (WS)
John Mowell	Operator	Class III (WS)
Dan Makiewicz	Operator	Class II (WS)
Duane Boswell	Operator	Class I (WS)
Roger Frock	Operator	Class I (WS)
John Allen	Operator	Class I (WS)
Lawrence Jackson	Operator	

All Plant Operators are required to be O.E.P.A. Certified in Quality Control parameters and obtain a Class I (WS) certification.

Laboratory Technicians are required to be O.E.P.A. Certified in MMO-MUG and Chemistry and obtain a Class II (WS) certification.

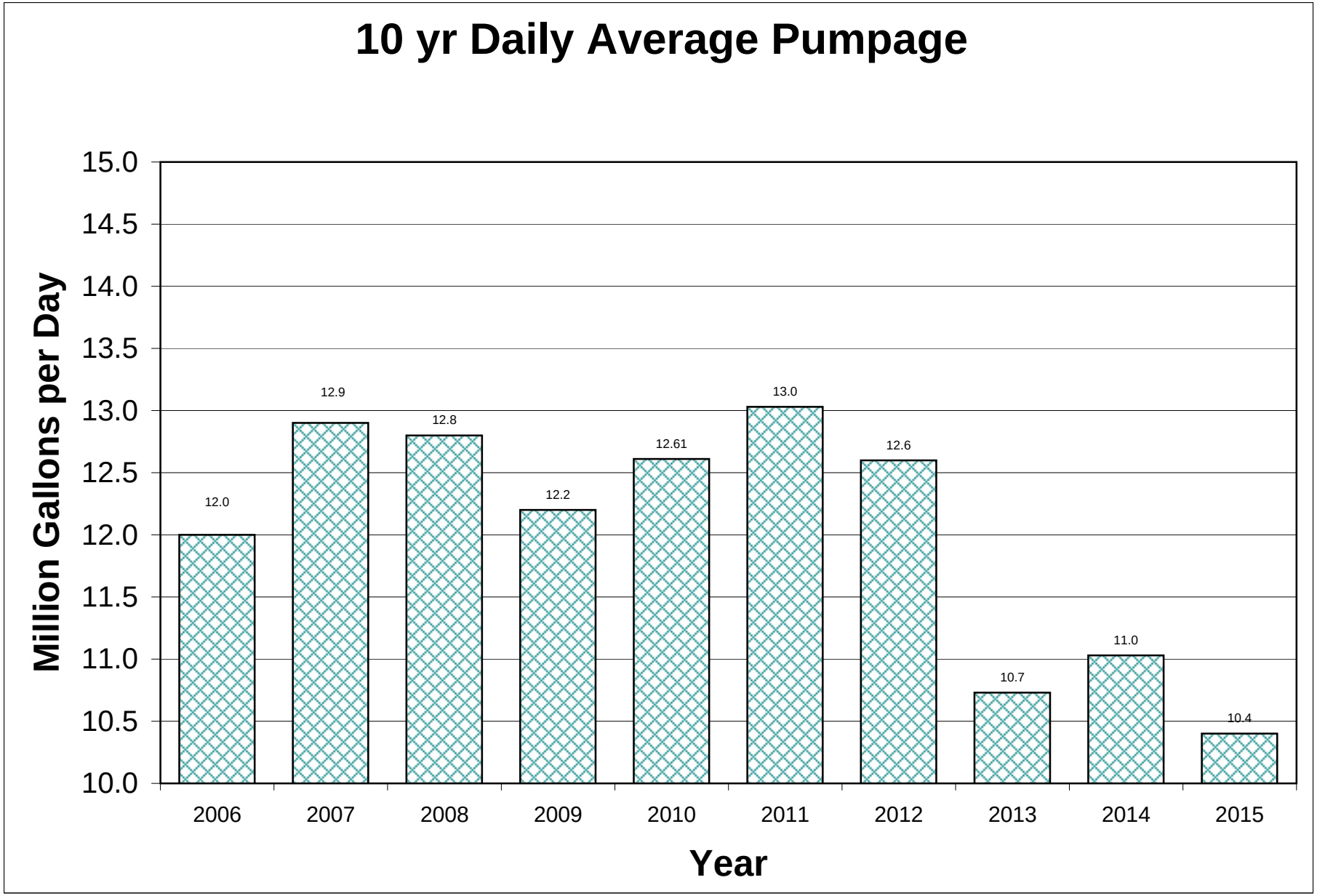
WS = Water Supply
MMO-MUG = Bacteria Certified

OPERATION & MAINT SCHEDULE

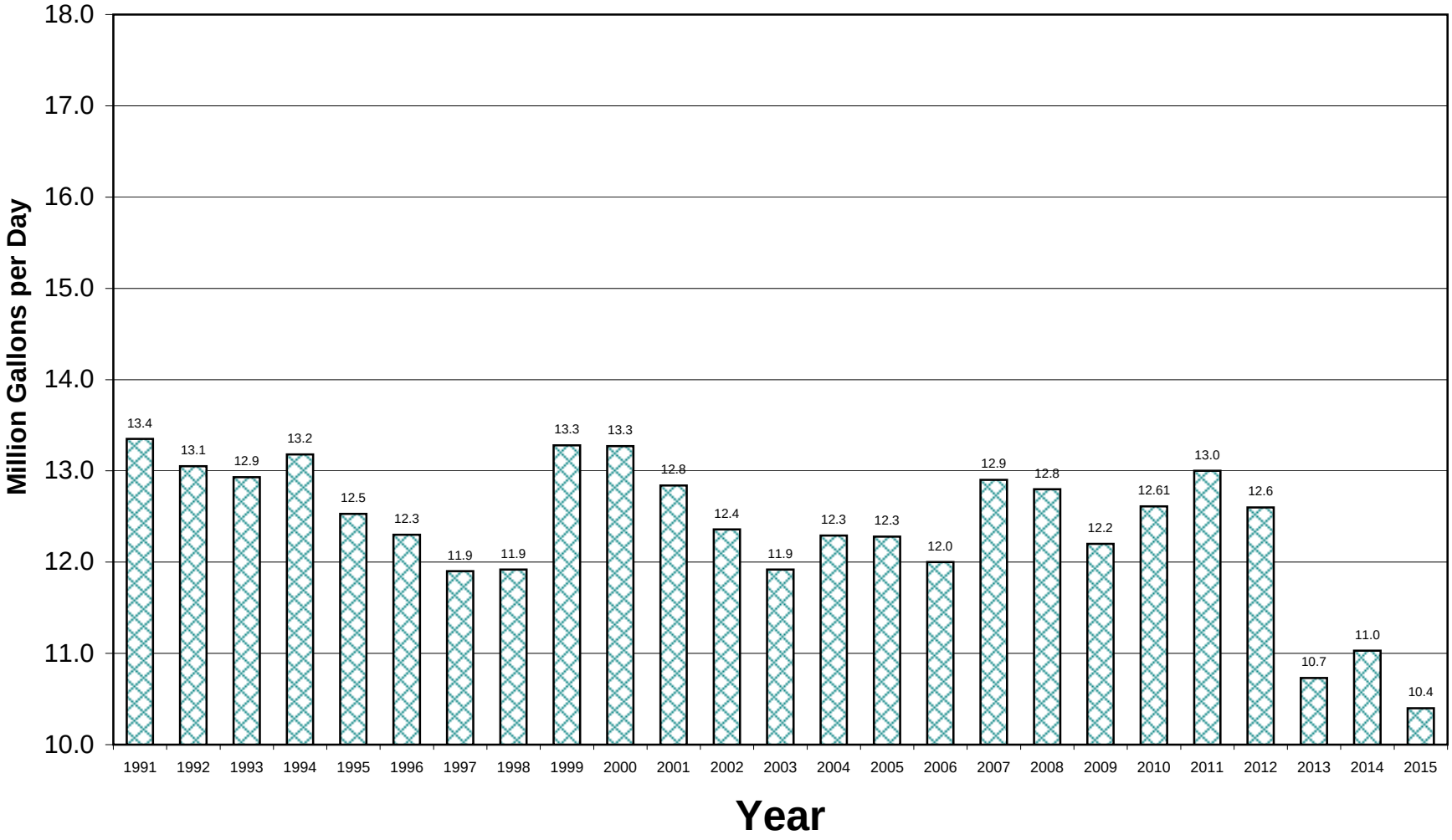
PERSONNEL	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1ST SHIFT BOSWELL	OP-1	OP-1	OP-1	OP-1	OP-1	**OFF**	**OFF**
2ND SHIFT MAKIEWICZ	OP-2	**OFF**	**OFF**	OP-2	OP-2	OP-2	OP-2
3RD SHIFT MOWELL	**OFF**	OP-3	OP-3	OP-3	OP-3	OP-3	**OFF**
RELIEF OPERATORS							
1ST SHIFT CROSBIE	MAINT	MAINT	MAINT	MAINT	MAINT	**OFF**	**OFF**
1ST SHIFT FROCK	MAINT	MAINT	MAINT	MAINT	MAINT	**OFF**	**OFF**
1ST SHIFT ALLEN	MAINT	MAINT	MAINT	**OFF**	**OFF**	OP-1	OP-1
SWING SHIFT JACKSON	OP-3	OP-2	OP-2	MAINT-2	**OFF**	**OFF**	OP-3
MAINTENANCE							
MAINT/MECH II LAUGHMAN	ON	ON	ON	ON	ON	**OFF**	**OFF**
MAINT/MECH II MOBERG	ON	ON	ON	ON	ON	**OFF**	**OFF**
MAINT/MECH II McCREARY	ON	ON	ON	ON	ON	**OFF**	**OFF**
MAINT/MECH II VACANT	ON	ON	ON	ON	ON	**OFF**	**OFF**
CUSTODIAN BOWERS	WTP	WWTP	WTP	WWTP	WTP	**OFF**	**OFF**
E & E TECH II SIMS	ON	ON	ON	ON	ON	**OFF**	**OFF**
E & E TECH II VACANT	ON	ON	ON	ON	ON	**OFF**	**OFF**
LABORATORY							
LAB TECH BROWN	ON	ON	ON	ON	ON	**OFF**	**OFF**
LAB TECH HUMPHREYS	ON	ON	ON	ON	ON	**OFF**	**OFF**

2015 WATER TREATMENT UTILITY SUMMARY

	ELECTRIC		GAS	
MONTH	KWH	AMOUNT	CFC	AMOUNT
JAN.	571,557	$43,461.91	5,139	$4,015.36
FEB.	607,574	$47,017.18	5,375	$3,737.74
MAR.	557,312	$44,524.35	4,505	$3,214.11
APR.	516,382	$41,876.25	5,026	$3,566.78
MAY	546,950	$45,393.56	2,707	$1,895.71
JUN.	581,406	$46,875.53	2,289	$1,546.49
JUL.	511,003	$37,471.83	3,057	$2,085.20
AUG.	530,483	$40,809.73	2,543	$1,761.65
SEP.	595,615	$43,976.59	2,583	$1,809.79
OCT.	453,054	$36,401.91	2,843	$2,006.12
NOV.	510,828	$38,767.86	3,685	$2,541.71
DEC.	511,745	$38,545.12	4,202	$2,866.85
TOTALS:	6,493,909	$505,121.82	43,954	$31,047.51


10 yr Daily Average Pumpage
Million Gallons per Day
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
10.5
10.0
12.0
12.9
12.8
12.2
12.61
13.0
12.6
10.7
11.0
10.4
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
Year

25 yr Daily Average Pumpage



2015 SPRINGFIELD WELL WATER PRODUCTION

WITHDRAWALS

GROUND WATER (in Units of Millions of Gallons) Registration Number 00494

SOURCE	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEPT.	OCT.	NOV.	DEC.	TOTAL PER YEAR MG
WELL NO.1	27.21	21.15	38.66	27.31	27.57	23.48	45.09	27.99	35.9	35.9	15.89	19.42	**345.57**
WELL NO.2	30.54	23.98	31.5	15.13	32.7	14.44	16.82	32.82	22.02	22.37	19.01	10.31	**271.64**
WELL NO.3	30.68	11.89	25.91	29.03	22.31	36.28	54.01	23	21.81	23.47	19.07	33.67	**331.13**
WELL NO.4	38.36	28.65	16	21.52	31.29	21.12	0	12.78	37.82	33.22	29.1	31.79	**301.65**
WELL NO.5	25.23	25.18	27.16	30.54	31.22	28.85	66.96	28	28.11	21.6	28.92	19.73	**361.50**
WELL NO.6	0	36.02	25.51	34.67	44.39	34.34	46.55	22.97	46.19	0	23.28	17.75	**331.67**
WELL NO.7	27.22	5.54	21.01	13.55	23.44	11.81	34.43	0	36.27	33.43	14.54	21.05	**242.29**
WELL NO.8	35.85	39.43	27.15	17.23	21.36	17.16	17.27	27.21	28.86	25.9	29.08	12.89	**299.39**
WELL NO.9	31.6	23.16	28.32	34.73	30.55	41.71	66.02	55.93	27.11	28.62	28.73	37.7	**434.18**
WELL NO.10	42.98	43.56	32.96	32.98	42.52	32.31	42.49	43.3	13.1	44.56	11.08	27.88	**409.72**
WELL NO.11	32.16	26.03	40.02	32.41	30.4	37.75	68.51	59.82	20.84	8.46	20.13	4.08	**380.61**
WELL NO.12	42.67	50.91	34.23	46.65	30.05	45.31	58.49	43.93	19.05	29.1	25.73	30.41	**456.53**
TOTAL	364.5	335.5	348.43	335.75	367.8	344.56	516.64	377.75	337.08	306.63	264.56	266.68	**GRAND TOTAL 4165.88**
MAXIMUM	42.98	50.91	40.02	46.65	44.39	45.31	68.51	59.82	46.19	44.56	29.1	37.7	
MINIMUM	25.23	5.54	16.00	13.55	21.36	11.81	16.82	12.78	13.10	8.46	11.08	4.08	
DAYS IN OPERATION	31	28	31	30	31	30	31	31	30	31	30	31	**TOTAL OPERATION DAYS 365**

MG= MILLION GALLONS

Flows calculated when conducting static/drawdown measurements (Meter reading x hours ran (rounded to nearest #)

AVERAGE DAILY WELL PUMPAGE (million gallons) = 11.41

TREATMENT PROCESS CHEMICAL SUMMARY

2015

CHEMICALS REPORTED IN POUNDS

MONTH	WELL FLOW MG	HIGH SERVICE FLOW MG	AVERAGE HS MGD	LIME	AVG LIME/DAY	CHLORINE	AVERAGE CHLORINE/ DAY	FERRIC SULFATE	AVERAGE FERRIC SULFATE/ DAY	SODIUM HEX	AVERAGE SODIUM HEX/ DAY
January	407.95	334.26	10.78	714,484	23,048	7,043	227	30,621	988	3,100	100
February	343.03	305.59	10.91	609,365	21,763	5,693	203	25,748	920	2,800	100
March	357.48	325.49	10.50	646,960	20,870	6,380	206	26,832	866	3,100	100
April	369.57	306.64	10.22	650,347	21,678	6,319	211	27,740	925	3,000	100
May	378.05	333.97	10.77	608,517	19,630	6,590	213	28,376	915	3,100	100
June	345.79	309.73	10.32	524,868	17,496	5,998	200	25,955	865	3,000	100
July	354.19	335.81	10.83	513,986	16,580	6,499	210	26,586	858	3,100	100
August	366.91	334.72	10.80	621,186	20,038	6,610	213	27,540	888	3,100	100
September	356.37	313.85	10.46	627,119	20,904	7,252	242	26,749	892	3,000	100
October	316.13	307.76	9.93	527,305	17,010	6,591	213	23,729	765	3,100	100
November	289.8	281.84	9.39	500,305	16,677	5,873	196	21,752	725	3,000	100
December	266.48	281.05	9.07	460,046	14,840	5,223	168	20,002	645	3,100	100
TOTAL	4,151.75	3,770.71		7,004,488		76,071		311,630		36,500	
MONTHLY AVERAGE	345.98	314.23		583,707		6,339		25,969		3,042	
DAILY AVERAGE			10.33		19,190.38		208.41		853.78		100

MGD= MILLION GALLONS DAY **MG= MILLION GALLONS** **HS= HIGH SERVICE**

Laboratory Summary

2015

The Springfield Water Treatment Plant Laboratory consists of two separate labs with independent Ohio Environment Protection Agency (EPA) Certifications. The Microbiological Lab and Chemical Lab carry approval #600. Each laboratory, lab technician, and plant operator must be re-certified every three years. Combined, these labs have the primary purposes of regulatory compliance with all Federal and State EPA laws governing potable water, as well as assisting in operational control and chemical treatment at the plant. The lab personnel are also responsible for the oversight of proper bacterial and disinfection testing of all new water line installations and repairs in the water distribution system. This includes sampling and testing protocol for "Boil Water Advisories."

The Ohio EPA requires the City of Springfield to perform a minimum of 70 Total Coliform tests per month within our own distribution system. The City of Springfield not only performs testing for itself, but also performs Total Coliform analysis under contract for many small local water systems such as villages, mobile home parks, churches, restaurants, private wells, and the Clark County Utilities Department. In 2015, we tested over 2,400 samples for bacteria, which was the same from 2014.

The Chemical Lab, consisting of lab technicians and operators, was re-certified in June 2013 and will be due for re-certification in June 2016. In 2015, Mr. Chris Humphreys was chosen from within the water plant as the replacement for a lab position left open from the previous year. Re-certification for the Micro Lab is due July of 2017.

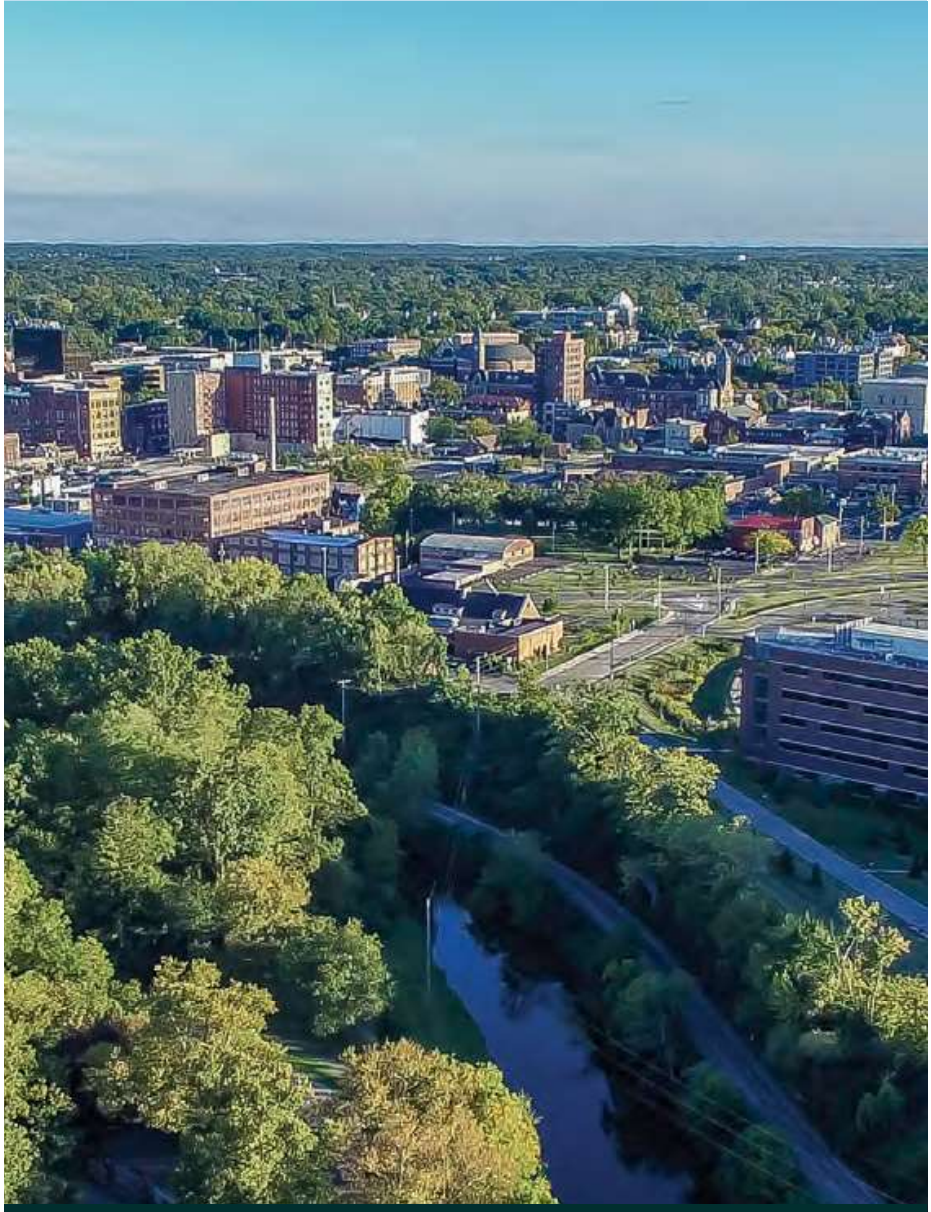
As part of our ongoing Well Head Protection Plan, comprehensive biannual testing of eight monitoring wells was performed in 2015. Results for contaminates tested for were either not detected, below detection level, or well below maximum contamination levels allowed in any of the wells. We will continue testing these wells biannually in 2016. Monitoring Sodium and Chloride levels continue to be a monthly exercise. Sites for these additional well tests are as follows: monitor well #2 (north of Tremont City Road, east of the railroad tracks), monitor well #6 (at Woodrow Corp.),

supply well # 10 and supply well #11 (our northern most supply wells), and the plant tap (finished water). In addition to these steps, we have tested private wells at three residences along Tremont City Road. All test results show natural levels of sodium and chloride, indicating no influence from external sources at the time of analysis.

The most significant lab purchase in 2015 was three new Hach colorimeters to ensure we are obtaining accurate results when measuring chlorine in the water supply.

The Springfield Water Treatment Plant will continue to provide an ample supply of affordable, high quality water through the diligent water quality analysis, operation, and maintenance of the facility by our dedicated and professional staff.

Christopher M. Brown
Laboratory Technician



CITY OF SPRINGFIELD

Water Treatment Plant Consumer Confidence Report for Year 2015

The City *of* Springfield Ohio

The City of Springfield works hard to provide high quality water to you!

Once again we are proud to present our annual water quality report. This edition covers all testing completed in 2015. We are pleased to tell you that our compliance with all state and federal drinking water laws remains exemplary. As in the past, we are committed to delivering the best quality drinking water.

To that end, we remain vigilant in meeting the challenges of source water protection and community education while continuing to serve the needs of all of our water users. We hope you find this document about the source of your water, how it's treated, test results, and answers to some frequently asked questions to be helpful. Please contact us with any questions or comments.

In 2015, the City of Springfield Water Treatment Plant produced 3,807,760,000 gallons of potable water and met or exceeded all drinking water standards. Springfield held an Unconditional License to Operate for year 2015.

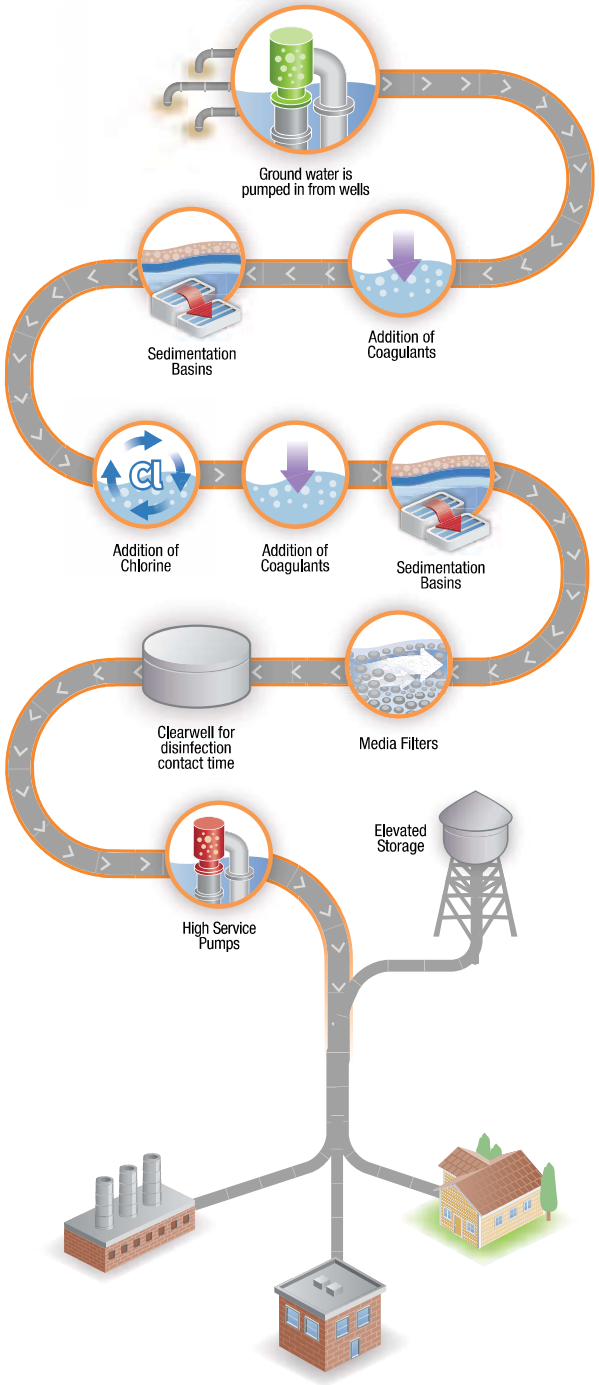
How is my water treated?

Your water undergoes several treatment processes after arriving at the plant and before it is sent to the distribution system. Our water treatment includes coagulation and flocculation (to cause small particles from the raw water to adhere to each other), sedimentation (to remove those particles), chlorination (for disinfection), and filtration (to remove the very smallest particles). Sodium hexametaphosphate is also added to help with corrosion control and stability.

Congratulations to our water professionals!

The Springfield Water Treatment Plant has been recognized for for its groundwater stewardship because the city has implemented groundwater-friendly practices related to chemical use, water use, pollution prevention, water quality, and environmental stewardship.

Springfield's Water Treatment Plant



City of Springfield Water Quality Data Table for the period of January 1, 2015 to December 31, 2015

About your drinking water:
The Environmental Protection Agency (EPA) requires regular sampling to ensure drinking water safety. The City of Springfield Water Treatment Plant (WTP) conducted sampling for bacteria, inorganics, and disinfection by-products during 2015. Samples were collected for a total of eight different contaminants in the Springfield water supply. 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, is more than one year old. Below is a list of water quality parameters for the Springfield Water Treatment Plant.

Contaminants (Units)	MCLG	MCL	Level Found	Range of Detections	Violation	Sample Year	Typical Source of Contamination
BATERIOLOGICAL							
Total Coliforms	0	No more than 5% of monthly samples	0.11507%		NO	2015	Bacteria present in the environment
1 of 76 samples in February 2015 indicated the presence of Total Coliform Bacteria. 1 out of 869 for the year.							
RADIOACTIVE CONTAMINANTS							
Radium (pCi/L)	0	5	0.96		NO	2014	Erosion of natural deposits
INORGANIC CONTAMINANTS							
Nitrate (ppm)	10	10	2.29		NO	2015	Runoff from fertilizer use; leaking from septic tanks, sewage; erosion of natural deposits
Barium (ppm)	2	2	0.020		NO	2014	Discharge of drilling waste; discharge from metal refineries; erosion of natural deposits
Flouride (ppm)	4	4	BDL		NO	2014	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
SYNTHETIC ORGANIC CONTAMINANTS (SOC'S) INCLUDING PESTICIDES AND HERBICIDES 3 separate contaminants were tested for. All results were Below Detectable Limits (BDL).							
			BDL		NO	2014	Runoff from herbicide used on row crops
VOLATILE ORGANIC CONTAMINANTS (VOC's) 58 separate contaminants were tested for. 3 of which had detectable results.							
Bromodichloromethane (ppb)	0	80	4.0		NO	2014	By-product of drinking water disinfection
Dibromochloromethane (ppb)	60	80	2.26		NO	2014	By-product of drinking water disinfection
Chloroform (ppb)	N/A	80	5.75		NO	2014	By-product of drinking water disinfection
RESIDUAL DISINFECTANTS							
Total Chlorine (ppm)	4 (MRDLG)	4 (MRDL)	1.11	.25 - 2.15	NO	2015	Disinfectants
DISINFECTION BY-PRODUCTS							
Haloacetic Acids (HAA5) (ppb)	N/A	60	7.39	2.25 - 9.20	NO	2015	By-product of drinking water disinfection
Total Trihalomethanes (TTHM's) (ppb)	N/A	80	36.1	12.78 - 47.57	NO	2015	By-product of drinking water disinfection
OTHER SUBSTANCES TESTED FOR							
	MCLG	AL (action level)	Concentration at 90th percentile	Range of Detections	Violation	Sample Year	Typical Source of Contamination
Lead (ppb)	0	15	0.004	BDL - 7.54	NO	2014	Corrosion of service lines and household plumbing
Copper (ppm)	0	1.3	0.027	BDL - .11	NO	2014	
OTHER WATER QUALITY PARAMETERS OF INTEREST							
pH	No goal set	6.5 - 8.5 (smcl USEPA) 7.0 - 10.5 (smcl OEPA)	9.73	9.44 - 10.02	No, smcl are recommendations and are unenforceable	2015	Naturally occuring; Treatment Process
Hardness (ppm)	No goal set	No set level	153	122 - 190	NO	2015	Naturally occuring
Magnesium (ppm)	No goal set	No set level	23	15 - 27	NO	2015	Naturally occuring
Calcium (ppm)	No goal set	No set level	23	17 - 34	NO	2015	Naturally occuring
Phosphate (ppm)	No goal set	No set level	0.95	.59 - 2.76	NO	2015	Naturally occuring
Stability	No goal set	No set level	1.34	0 - 3	NO	2015	Treatment Process
Turbidity (NTU)	N/A	TT	0.042	0.033 - .142	NO	2015	Soil Runoff
Total Alkalinity (ppm)	No goal set	No set level	82	56 - 106	NO	2015	Naturally occuring
Sodium (ppm)	No goal set	No set level	20.3	14.0 - 25.9	NO	2015	Naturally occuring; Treatment Process
Chloride (ppm)	No goal set	250 (ppm) (smcl)	40.3	33 - 51.5	NO	2015	Naturally occuring; Treatment Process

Contaminants (Units)	MCLG	MCL	Level Found	Range of Detections	Violation	Sample Year	Typical Source of Contamination
UNREGULATED CONTAMINANT MONITORING RULE 3 (UCMR3)							
UCMR3 monitoring benefits the environment and public health as follows: EPA and other interested parties will have scientifically valid data on the occurrence of targeted contaminants in drinking water; EPA can assess the number of people potentially being exposed; and EPA can provide an estimate of the levels of that exposure. This data set is one of the primary sources of occurrence and exposure information the agency uses to develop regulatory decisions for contaminants of concern.							
Chromium 6 (ppb)	No goal set	No set level	0.282	0.258 - 0.300	NO	2014	Naturally-occurring element; used in making steel and other alloys; chromium-3 or -6 forms are used for chrome plating, dyes and pigments, leather tanning, and wood preservation
Chromium Total (ppb)	No goal set	No set level	0.395	0.362 - 0.412	NO	2014	
Molybdenum (ppb)	No goal set	No set level	3.82	3.422 - 4.221	NO	2014	Naturally-occurring element found in ores and present in plants, animals and bacteria; commonly used form molybdenum trioxide used as a chemical reagent
Strontium (ppb)	No goal set	No set level	159.52	124.868 - 204.832	NO	2014	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium (ppb)	No goal set	No set level	0.244	0.241 - 0.246	NO	2014	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst

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.

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.

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.

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.

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.

The "<"symbol: A symbol which means 'less than'.

Picocuries per liter (pCi/L): A common measure of radioactivity.

USEPA: United States Environmental Protection Agency

OEPA: Ohio Environmental Protection Agency

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Source Water Information

Springfield WTP receives its drinking water from the Mad River Valley Buried Aquifer. Twelve wells located along Mad River draw water from the aquifer. Due to the depth and porosity of this aquifer, there is a high susceptibility to contamination. Also, several potential sources of contamination have been identified within the Source Water Assessment (SWA) area. This area encompasses all lands within a 5-year time of travel to the well-field. The City of Springfield has developed a comprehensive SWA plan to manage all potential sources of contamination within this zone and to minimize impacts to the aquifer. Communication with property and business owners and the general public are emphasized in the SWA plan. The SWA plan is available by calling the Springfield WTP at 937-525-5880 or the Ohio EPA at 614-644-2752.

Is My Water "HARD"?
Although we do soften the water, Springfield's water is considered to be hard. The water from the supply wells has an average hardness of 352mg/l or 20.58 grains per gallon. The water after treatment has an average hardness of 153mg/l or 8.95 grains per gallon.

What are sources of contamination to drinking water?
The sources of drinking water, both tap and bottled water, include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land and 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 agricultural, 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 which 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.

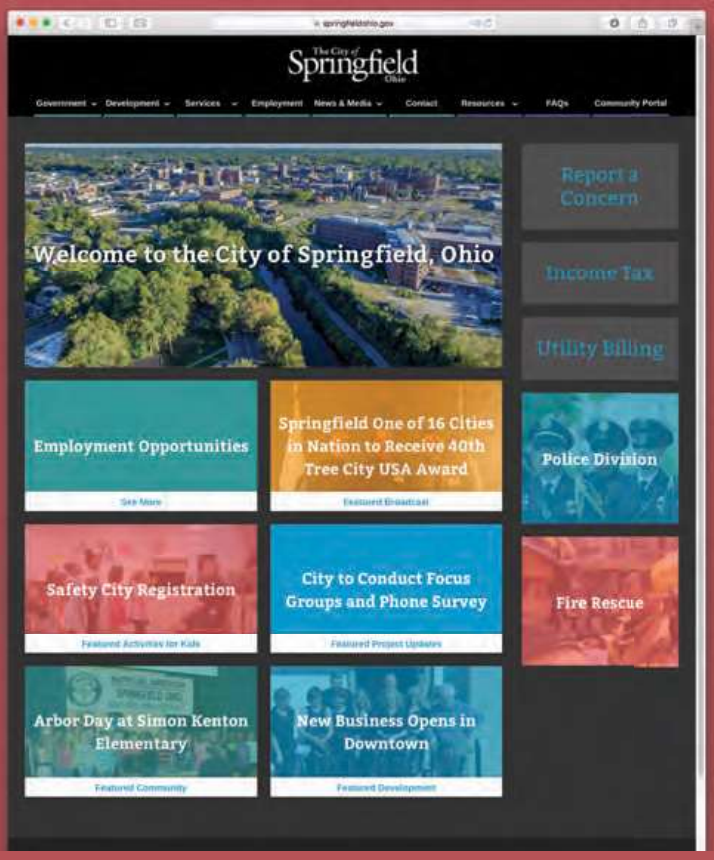
Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling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

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 Springfield Water Treatment Plant 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 or at http://www.epa.gov/safewater/lead.

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/Center for Disease Control (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).

Check out our NEW website:

www.springfieldohio.gov



How do I participate in decisions concerning my drinking water?

Public participation and comment are encouraged at regular meetings of City Commission, which meets biweekly on Tuesdays in the Forum at City Hall. For more information on your drinking water contact the Water Treatment Plant at 937-525-5880 or visit www.springfieldohio.gov.

WHERE TO CALL

UTILITY BILLING
937-324-7365

WATER METER READINGS
937-324-7365

WATER METER REPAIR
937-525-5800

WATER LEAKS
DAYTIME..... 937-525-5800
NIGHTS & WEEKENDS 937-324-7663

WATER DISTRIBUTION
937-525-5800

WATER ADMINISTRATION
937-525-5800

WATER TREATMENT PLANT
937-525-5880

WATER QUALITY
937-525-5880

MAYOR
WARREN COPELAND

CITY MANAGER
JIM BODENMILLER

SERVICE DIRECTOR
CHRIS MOORE (937-525-5800)

OPERATIONS ENGINEER
TIM WEAVER (937-525-5800)

WATER PLANT SUPERINTENDENT
ALLEN JONES (937-525-5880)

2015

City of Springfield

Stage 2 DBP Sample Monitoring Plan

Ground Water Systems Serving 10,000-99,999

PWS NAME: SPRINGFIELD, CITY OF	PWS ID: OH1204412	YEAR	2015

SAMPLE MONITORING LOCATION ID	MONITORING LOCATION ADDRESS		PROJECTED SAMPLING DATES (MONTH/WEEK) sample dates must be **90** ±**5** days apart					
			February	May	August	November	Yearly Avg/Site	MCL ug/L
			RESULTS ug/L	RESULTS ug/L	RESULTS ug/L	RESULTS ug/L		
DS201	2100 Quality Ln. Mid Ohio Harley	Total TTHM	24.16	31.66	42.46	26.92	31.30	80
		Total HAA5	4.60	5.88	8.63	8.68	6.95	60
DS202	1576 E. Main St. Peanut Shoppe	Total TTHM	16.99	17.48	20.33	15.41	17.55	80
		Total HAA5	3.62	3.99	4.07	5.37	4.26	60
DS203	1985 Airpark Ave. Bob Evans Dist.	Total TTHM	36.10	29.71	47.57	28.42	35.45	80
		Total HAA5	6.21	5.21	9.20	8.93	7.39	60
DS204	1938 Mitchell Blvd. Soap Box Laundry	Total TTHM	12.78	16.93	15.30	13.31	14.58	80
		Total HAA5	2.76	2.25	4.09	4.78	3.47	60

P R I M A R Y S T A N D A R D S

		pCi/l	MCL pCi/l
Radionucleides	**Total Alpha Particle**		<15 pCi/l
	Total Beta Particle		4 pCi/l
	Radium		pCi/l

P R I M A R Y S T A N D A R D S

INORGANICS CHEMICALS

(mg/l)

CONTAMINANT	SPRINGFIELD WATER	MAXIMUM CONTAMINANT LEVEL	SOURCE	HEALTH EFFECTS
Antimony	BDL	0.006	ceramics,glass,pesticides	slows growth
Arsenic	BDL	0.05	geological,industrial waste	toxic to nervous system
Asbestos	Not Required	7	geological,construction materials	tumors
Barium	0.0199	2	geological,industrial uses	circulatory system effects
Beryllium	BDL	0.004	geological,industrial uses	possible cancer
Cadmium	BDL	0.005	geological,metal finishing	kidney effects
Chromium	BDL	0.1	metal finishing,tanning,textiles	liver,kidney,digestive system
Cyanide	BDL	0.2	electroplating,plastics	spleen,brain,liver effects
Flouride	BDL	4	geological,toothpaste	skeletal damage
Lead	0.0042	0.015	geological,leaches from pipes	toxic to nervous system
Copper	0.0272	1.3	geological,leaches from pipes	digestive sytem,liver damage,kidney
Mercury	BDL	0.002	paint,paper,fungicides	nervous system disorders
Nickel	BDL	0.1	electroplating,ceramics,batteries	spleen,brain,liver effects
Nitrate	2.29	10	fertilizer,feedlots,sewage	methemoglobinemia
Nitrite	Not Required	1	geological	methemoglobinemia
Selenium	BDL	0.05	geological,copper mining/smelting	nervous system disorders
Thallium	BDL	0.002	electronics & glass industry	kidney,brain,liver effects
Zinc	Not Required	5	plating of steel(corrosion resistant)	slow growth,infection susceptibility

Primary standards are health related.

mg/l = milligrams per liter = parts per million

ug/l = micrograms per liter = parts per billion

When the prefix "<" (less than) is used, the result is below the concentration that the method used can accurately detect.

All results except Nitrates are from 2014

P R I M A R Y S T A N D A R D S

VOLITALE ORGANIC CHEMICALS

ug/L

ANALYTE	SPRINGFIELD WATER	MAXIMUM CONTAMINANT LEVEL
Benzene	BDL	5
Vinyl chloride	BDL	2
Carbon tetrachloride	BDL	5
1,2-Dichloroethane	BDL	5
1,1,1-Trichloroethane	BDL	200
1,2-Dichlorobenzene	BDL	75
1,1-Dichloroethene	BDL	7
1,3-Dichlorobenzene	BDL	600
cis-1,2-Dichloroethene	BDL	5
trans,1,2-Dichloroethene	BDL	100
1,2-Dichloropropane	BDL	5
Ethylbenzene	BDL	700
Monochlorobenzene		100
Styrene	BDL	100
Tetrachloroethylene	BDL	B
Toluene	BDL	1000
Xylenes(total)	BDL	10000
Dichloromethane		5
1,2,4-Trichlorobenzene	BDL	70
2,2-Dichloropropane	BDL	*******
Dichlorodifluoromethane	BDL	*******
Dichloromethane		*******
1,3-Dichloropropane	BDL	*******
Chloromethane	BDL	*******
Bromomethane	BDL	*******
Bromodichloromethane	4	*******
Dibromochloromethane	2.26	*******

ANALYTE	SPRINGFIELD WATER	MAXIMUM CONTAMINANT LEVEL
1,2,3-Trichloropropane	BDL	*******
1,1,1,2-Tetrachloroethane	BDL	*******
1,1,2,2-Tetrachloroethane	BDL	*******
1,1-Dichloropropene	BDL	*******
Chloroethane	BDL	*******
1,3-Dichloroprene		*******
Hexachlorobutadiene	BDL	*******
Naphthalene	BDL	*******
tert-Butylbenzene	BDL	*******
p-Isopropyltoluene		*******
Fluortrichloromethane		*******
sec-Butylbenzene	BDL	*******
1,1-Dichloroethane	BDL	*******
Bromobenzene	BDL	*******
m-Xylene		*******
o-Xylene	n/a	*******
p-Xylene	n/a	*******
n-Propylbenzene	BDL	*******
o-Chlorotoluene		*******
p-Chlorotoluene		*******
1,4-Dichlorobenzene	BDL	*******
1,2,3-Trichlorobenzene	BDL	*******
1,2,4-Trichlorobenzene	BDL	*******
n-Butylbenzene	BDL	*******
1,3,5-Trimethylbenzene	BDL	*******
Chloroform	5.75	*******

BDL = Below Detectable Limits

ug/l = Micrograms per liter

RESULTS FROM 2014

P R I M A R Y S T A N D A R D S

SYNTHETIC ORGANIC CHEMICALS

mg/L

ANALYTE	SPRINGFIELD WATER	MAXIMUM CONTAMINANT LEVEL
Alachlor	ND	0.002 mg/l
Asdicarb		0.007(proposed)
Aldicarb Sulfone		0.007(proposed)
Aldicarb Sulfoxide		0.007(proposed)
Aldrin		
Atrazine	ND	0.003 mg/l
Benzoapyrene		0.0002 mg/l
Butachlor		
Carbaryl		
Carbofuran		0.04 mg/l
Chlordane		0.002 mg/l
Dalapon		0.2 mg/l
Dibromochloropropane		0.0002 mg/l
Dicamba		
Dieldrin		
Di(2-ethylhexyl)adipate		0.4 mg/l
Di(2-ethylhexyl)phthalate		0.006 mg/l
2,4-D		0.07 mg/l
Dinoseb		0.007 mg/l
Diquat		0.02 mg/l
Endothall		0.1 mg/l
Endrin		0.002 mg/l
Ethylene Dibromide		0.00005 mg/l

ANALYTE	SPRINGFIELD WATER	MAXIMUM CONTAMINANT LEVEL
Glyphosate	n/a	0.7 mg/l
Methomyl		
Methoxychlor	n/a	0.04 mg/l
Metolachlor	n/a	
Metribuzin	n/a	
Oxamyl(Vydate)		0.2 mg/l
Pentachllorophenol		0.001 mg/l
Picloram		0.5 mg/l
PCBs	n/a	
Propachlor	n/a	
Simazine	ND	0.004 mg/l
Silvex		
Toxaphene	n/a	
2,4,5-TP (Silvex)	n/a	
Cyanazine	n/a	
Trifluralin	n/a	
Heptachlor	n/a	0.0004 mg/l
Heptachlor Epoxide	n/a	0.0002 mg/l
Hexachlorobenzene	n/a	0.001 mg/l
Hexachlorocycolopentadiene	n/a	0.05 mg/l
3-Hydroxycarbofuran		
Lindane	n/a	0.0002 mg/l

These chemicals are from pesticides and herbicides

ND = none detected

mg/l = miligrams per liter

Results From 2014

S E C O N D A R Y PARAMETERS

	ANALYTE	UNITS	SPRINGFIELD WATER	MAXIMUM CONTAMINANT LEVEL
Treatment Parameters	pH	0-14	9.73	7-10.5
	Magnesium	mg/l	23	
	Hardness	mg/l	153	
	Phosphate	mg/l	0.950	
	Calcium	mg/l	23	

Other Parameters	T.D.S.	mg/l	*372	500 mg/l
	Sulfate	mg/l	*66	250 mg/l
	Chloride	mg/l	40.3	250 mg/l
	Manganese	mg/l	*<.030	0.05 mg/l
	Sodium	mg/l	20.3	
	Iron	mg/l	*<.080	0.3 mg/l
	Alkalinity	mg/l	82	

Secondary parameters are chemicals that are not health related but are aesthetic guidelines for drinking water.

mg/l = milligrams per liter = parts per million

* = Results From 2010

BACTERIOLOGICAL REPORT

MONTH	NUMBER OF TESTS	TOTAL COLIFORM POSITIVE
JANUARY	72	0
FEBRUARY	76	1
MARCH	73	0
APRIL	72	0
MAY	72	0
JUNE	72	0
JULY	72	0
AUGUST	72	0
SEPTEMBER	72	0
OCTOBER	72	0
NOVEMBER	72	0
DECEMBER	72	0
TOTAL	869	1

We are required to sample at least 70 locations every month in Springfield. These are the results of those tests. We also perform bacteria tests for customer complaints, boil notices, some mobile home parks, and other public water supply contracts. Those results have not been included here. The total number of tests for 2015 exceeds 1,000.

TAP WATER ANALYSIS SUMMARY

MONTH	pH	ALKALINITY Phenol	ALKALINITY Total	HARDNESS	CALCIUM	MAGNESIUM	STABILITY	NO_3	* PO_4-P Residual	CHLORINE RESIDUAL Plant Free	CHLORINE RESIDUAL Plant Total	CHLORINE RESIDUAL DISTRIBUTION Free	CHLORINE RESIDUAL DISTRIBUTION Total
JANUARY	9.61	17	79	149	19	24	1	1.53	0.91	1.27	1.38	1.15	1.27
FEBRUARY	9.66	17	79	150	19	23	1	2.21	1.16	1.24	1.35	1.09	1.21
MARCH	9.68	17	77	150	20	24	2	1.98	0.91	1.21	1.31	1.03	1.14
APRIL	9.8	19	78	149	23	22	1	<1	2.76	1.31	1.41	0.95	1.07
MAY	9.74	19	85	156	22	24	2	1.18	0.62	1.30	1.41	0.97	1.09
JUNE	9.79	19	81	155	22	24	2	1.38	0.67	1.22	1.32	0.81	0.92
JULY	9.85	20	83	154	21	24	2	1.23	0.84	1.29	1.40	0.87	0.97
AUGUST	9.73	20	85	155	23	24	1	1.82	0.59	1.27	1.35	0.93	1.00
SEPTEMBER	9.76	21	84	154	24	23	1	1.82	0.60	1.30	1.39	0.94	1.01
OCTOBER	9.72	22	87	155	25	23	1	1.19	0.67	1.34	1.41	1.01	1.09
NOVEMBER	9.74	21	83	152	27	20	1	1.22	0.65	1.26	1.34	0.91	0.98
DECEMBER	9.72	20	81	154	26	21	1	1.19	0.97	1.28	1.36	0.98	1.04
AVERAGES	9.73	19	82	153	23	23	1.36	1.52	0.95	1.27	1.37	0.97	1.07

All concentrations are reported in milligrams per liter
PO_4-P = phosphate as phosphorus
NO_3
* = Pace Analytical Lab Results

City of Springfield

UCMR3

Analyte	JUNE		DECEMBER	
	SAMPLE MONITORING LOCATION	SAMPLE MONITORING LOCATION ID	SAMPLE MONITORING LOCATION	SAMPLE MONITORING LOCATION ID
	201 Eagle City Rd. EP001	**1985 Airpark Dr. MR001**	**201 Eagle City Rd. EP001**	**1985 Airpark Dr. MR001**
	RESULTS ug/L	RESULTS ug/L	RESULTS ug/L	RESULTS ug/L
1,1-dichloroethane	<0.03		0.034	
1,2,3-trichloropropane	<0.03		<0.03	
1,3-butadiene	<0.1		<0.1	
bromochloromethane	<0.06		<0.06	
bromomethane	<0.2		<0.2	
chlorodiflouromethane	<0.08		<0.08	
chloromethane	<0.2		<0.2	
chlorate	<20	<20	<20	<20
1,4-dioxane	<0.07		<0.07	
chromium-6	0.258	0.300	0.288	0.283
PFBS	<0.09		<0.09	
PFHpA	<0.01		<0.01	
PFHxS	<0.03		<0.03	
PFNA	<0.02		<0.02	
PFOA	<0.02		<0.02	
PFOS	<0.04		<0.04	
chromium(total)	0.362	0.396	0.411	0.412
cobalt	<1	<1	<1	<1
molybdenum	3.639	3.422	4.221	3.999
strontium	176.88	204.832	124.868	131.506
vanadium	0.246	<0.2	<0.2	0.241

Results from 2014 testing event

WELL WATER QUALITY

JANUARY 2015

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.55	13.0	804	7.40	294	352	90	0.902	NEG	<1
Well #2	0.39	13.5	857	7.21	318	380	93	0.817	NEG	<1
Well #3	0.27	13.1	824	7.37	302	368	96	1.560	NEG	1.70
Well #4	0.06	11.6	753	7.33	284	346	88	0.210	NEG	1.68
Well #5	0.25	12.5	711	7.47	274	334	82	1.350	NEG	1.57
Well #6									OOS	
Well #7	0.23	12.5	688	7.58	274	330	85	1.060	NEG	1.42
Well #8	0.10	11.7	698	7.64	278	332	81	0.336	POS	1.72
Well #9	0.13	11.8	728	7.56	280	338	85	0.592	NEG	1.49
Well #10	0.16	11.8	736	7.52	284	348	90	0.617	NEG	1.85
Well #11	1.34	12.2	784	7.19	304	370	98	16.100	NEG	<1
Well #12	0.05	11.7	700	7.48	274	344	86	0.162	NEG	2.57

POS = POSITIVE NEG = NEGATIVE OOS = OUT OF SERVICE

WELL WATER QUALITY

FEBRUARY **2015**

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.17	13.1	793	7.35	282	338	85	0.512	NEG	1.08
Well #2	0.43	13.8	869	7.23	314	370	94	0.271	NEG	<1
Well #3	0.29	12.8	878	7.34	304	372	99	0.786	NEG	1.39
Well #4	0.09	11.5	730	7.40	276	334	89	0.158	NEG	2.03
Well #5	0.22	12.5	682	7.43	268	324	79	1.020	NEG	1.63
Well #6	0.09	12.3	671	7.58	266	326	79	0.100	NEG	1.93
Well #7	0.17	12.5	671	7.54	268	326	81	0.747	NEG	1.34
Well #8	0.09	10.5	709	7.65	280	336	85	0.177	NEG	2.29
Well #9	0.19	11.4	737	7.51	280	338	86	0.365	NEG	1.87
Well #10	0.02	10.9	738	7.51	282	348	88	0.640	NEG	2.17
Well #11	1.47	12.1	799	7.30	310	382	100	12.200	NEG	<1
Well #12	0.08	10.4	649	7.59	272	340	86	0.116	NEG	3.00

POS = POSITIVE **NEG = NEGATIVE** **OOS = OUT OF SERVICE**

WELL WATER QUALITY

MARCH 2015

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.16	12.8	788	7.37	282	352	88	0.567	NEG	<1
Well #2	0.42	13.5	858	7.30	310	372	94	3.030	NEG	<1
Well #3	0.28	12.5	827	7.43	302	370	99	0.732	NEG	1.28
Well #4	0.08	9.9	759	7.38	278	346	90	0.139	NEG	1.62
Well #5	0.25	11.6	747	7.56	272	340	90	0.680	NEG	1.27
Well #6	0.07	12.0	692	7.47	266	330	82	0.323	NEG	1.34
Well #7	0.23	12.5	684	7.63	274	328	88	1.070	NEG	1.22
Well #8	0.10	9.9	694	7.63	270	326	82	0.320	NEG	1.64
Well #9	0.16	10.7	707	7.62	270	328	86	0.301	NEG	1.17
Well #10	0.23	10.5	739	7.54	276	346	87	0.740	NEG	1.64
Well #11	1.21	12.2	786	7.29	298	360	98	14.400	NEG	<1
Well #12	0.10	10.3	696	7.52	274	344	86	0.224	NEG	2.70

POS = POSITIVE NEG = NEGATIVE OOS = OUT OF SERVICE

WELL WATER QUALITY

APRIL **2015**

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.14	12.4	802	7.38	276	330	86	0.326	NEG	<1
Well #2	0.46	13.3	868	7.31	308	370	96	0.846	NEG	<1
Well #3	0.35	12.4	927	7.34	314	394	102	1.340	NEG	1.42
Well #4	0.01	11.9	793	7.47	286	352	91	0.189	NEG	1.49
Well #5	0.31	11.8	734	7.58	272	334	86	1.050	NEG	1.03
Well #6	0.12	11.9	669	7.52	266	320	81	0.282	NEG	1.33
Well #7	0.24	12.3	685	7.57	280	328	86	0.459	NEG	1.23
Well #8	0.10	10.7	684	7.73	276	334	86	0.307	NEG	1.52
Well #9	0.12	9.8	699	7.61	260	326	84	0.317	NEG	1.45
Well #10	0.13	9.2	727	7.49	272	346	88	0.449	NEG	1.55
Well #11	1.23	12.2	781	7.31	294	380	98	14.700	NEG	<1
Well #12	0.10	10.3	680	7.60	274	338	86	0.115	NEG	1.91

POS = POSITIVE **NEG = NEGATIVE** **OOS = OUT OF SERVICE**

WELL WATER QUALITY

MAY **2015**

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.15	12.3	818	7.46	282	344	92	0.545	NEG	1.12
Well #2	0.39	12.7	884	7.39	314	374	96	2.560	NEG	<1
Well #3	0.27	11.5	823	7.36	298	366	95	1.280	NEG	1.41
Well #4	0.05	11.3	786	7.39	294	358	93	0.118	NEG	1.43
Well #5	0.25	11.9	719	7.53	276	340	85	0.418	NEG	1.16
Well #6	0.09	11.8	659	7.58	272	328	80	0.079	NEG	1.50
Well #7	0.24	12.0	684	7.52	278	336	83	1.120	NEG	1.54
Well #8	0.06	10.7	684	7.65	276	332	84	0.278	NEG	1.88
Well #9	0.13	10.7	695	7.76	272	338	90	0.228	NEG	1.46
Well #10	0.18	10.9	731	7.62	276	340	86	0.586	NEG	1.35
Well #11	0.84	12.2	786	7.38	306	376	100	13.800	NEG	<1
Well #12	0.09	10.8	679	7.52	274	334	84	0.306	NEG	2.18

POS = POSITIVE **NEG = NEGATIVE** **OOS = OUT OF SERVICE**

WELL WATER QUALITY

JUNE **2015**

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.16	11.9	840	7.45	286	356	90	0.127	NEG	1.44
Well #2	0.56	12.1	858	7.43	308	384	95	2.830	NEG	<1
Well #3	0.30	11.3	890	7.41	304	382	99	1.080	NEG	1.24
Well #4	OOS	OOS	OOS	OOS	OOS	OOS	OOS	OOS	OOS	OOS
Well #5	0.23	12.4	720	7.61	282	342	87	0.937	NEG	1.17
Well #6	0.13	12.1	661	7.64	268	328	82	0.112	NEG	1.65
Well #7	0.30	12.5	685	7.87	278	340	85	0.752	NEG	1.49
Well #8	0.15	13.1	695	7.81	276	338	85	0.255	NEG	1.92
Well #9	0.15	12.1	706	7.67	276	334	83	0.701	NEG	1.33
Well #10	0.18	11.7	728	7.55	276	360	90	0.624	NEG	1.67
Well #11	0.81	12.0	787	7.38	300	378	102	13.800	NEG	<1
Well #12	0.05	11.1	678	7.60	270	344	87	0.066	NEG	2.45

POS = POSITIVE **NEG = NEGATIVE** **OOS = OUT OF SERVICE**

WELL WATER QUALITY

JULY **2015**

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.20	12.1	873	7.56	294	366	94	0.656	NEG	1.49
Well #2	0.37	11.9	892	7.43	300	384	98	1.560	NEG	<1
Well #3	0.44	11.7	944	7.49	314	376	103	0.652	NEG	1.32
Well #4	OOS	OOS	OOS	OOS	OOS	OOS	OOS	OOS	OOS	OOS
Well #5	0.30	13.3	787	7.51	290	354	89	1.480	NEG	<1
Well #6	0.16	12.9	669	7.64	268	326	86	0.317	NEG	1.31
Well #7	0.24	12.9	685	7.64	276	334	85	1.120	NEG	1.38
Well #8	0.05	14.0	675	7.74	268	334	87	0.173	NEG	2.32
Well #9	0.14	12.8	703	7.63	274	332	82	0.791	NEG	1.34
Well #10	0.15	13.7	734	7.62	280	346	89	0.603	NEG	1.55
Well #11	1.31	12.1	790	7.52	302	384	101	11.000	NEG	<1
Well #12	0.15	12.0	679	7.62	274	346	93	0.297	NEG	2.44

POS = POSITIVE **NEG = NEGATIVE** **OOS = OUT OF SERVICE**

WELL WATER QUALITY

AUGUST 2015

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.10	13.3	860	7.29	284	348	90	0.156	NEG	2.79
Well #2	0.55	11.9	872	7.39	310	382	95	3.800	NEG	1.18
Well #3	0.35	11.9	852	7.25	304	368	97	1.600	NEG	1.68
Well #4	0.03	13.3	799	7.33	298	358	93	0.108	NEG	1.46
Well #5	0.37	13.6	704	7.48	272	326	84	1.140	NEG	<1
Well #6	0.21	13.8	677	7.46	268	340	83	0.336	NEG	1.80
Well #7	OOS	OOS	OOS	OOS	OOS	OOS	OOS	OOS	OOS	OOS
Well #8	0.14	14.4	692	7.57	276	330	88	0.232	NEG	2.33
Well #9	0.18	13.7	707	7.47	278	334	88	0.505	NEG	1.78
Well #10	0.24	14.7	733	7.42	280	338	87	0.742	NEG	2.01
Well #11	1.20	12.2	785	7.25	306	376	100	2.940	NEG	1.33
Well #12	0.07	12.5	690	7.44	278	342	90	0.431	NEG	2.85

POS = POSITIVE NEG = NEGATIVE OOS = OUT OF SERVICE

WELL WATER QUALITY

SEPTEMBER 2015

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.11	12.7	808	7.36	272	342	88	0.206	NEG	3.05
Well #2	0.35	11.9	878	7.30	306	376	96	1.060	NEG	1.20
Well #3	0.27	12.1	831	7.31	300	360	96	0.610	NEG	1.58
Well #4	0.09	13.6	781	7.35	286	356	91	0.114	NEG	1.43
Well #5	0.31	14.1	719	7.48	278	334	92	1.710	NEG	1.19
Well #6	0.05	13.9	678	7.48	270	320	81	0.110	NEG	1.37
Well #7	0.23	13.8	699	7.45	268	332	82	0.525	NEG	1.69
Well #8	0.13	14.9	704	7.55	278	338	86	0.218	NEG	2.48
Well #9	0.16	14.4	722	7.46	284	338	92	0.156	NEG	2.13
Well #10	0.23	15.2	729	7.42	278	342	93	0.687	NEG	2.16
Well #11	1.17	12.2	776	7.29	302	378	101	4.380	NEG	1.34
Well #12	0.02	12.6	688	7.49	284	354	90	0.166	NEG	3.05

POS = POSITIVE NEG = NEGATIVE OOS = OUT OF SERVICE

WELL WATER QUALITY

OCTOBER 2015

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1		13.1	803	7.33	296	360	92	0.099	NEG	1.22
Well #2	0.58	11.9	833	7.24	310	394	97	2.670	NEG	<1
Well #3	0.32	13.1	826	7.30	300	360	97	0.683	NEG	1.53
Well #4	0.08	14.1	788	7.27	294	358	94	0.246	NEG	1.67
Well #5	0.26	14.7	713	7.53	278	344	93	1.550	NEG	1.34
Well #6	OSS	OSS	OSS	OSS	OSS	OSS	OSS	OSS	OSS	OSS
Well #7	0.35	14.0	697	7.63	278	338	88	0.721	NEG	1.78
Well #8	0.07	14.8	711	7.56	282	338	89	0.321	NEG	2.34
Well #9	0.15	14.8	726	7.48	286	346	97	0.591	NEG	1.72
Well #10	0.31	14.9	741	7.40	286	352	92	0.598	NEG	1.75
Well #11	OSS	OSS	OSS	OSS	OSS	OSS	OSS	OSS	OSS	OSS
Well #12	0.05	13.4	686	7.49	278	342	91	0.114	NEG	2.68

POS = POSITIVE NEG = NEGATIVE OOS = OUT OF SERVICE

WELL WATER QUALITY

NOVEMBER 2015

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.10	13.2	800	7.37	290	338	89	0.194	NEG	1.29
Well #2	0.62	12.5	817	7.31	310	362	94	0.656	NEG	<1
Well #3	0.32	13.4	866	7.30	310	376	108	1.440	NEG	1.27
Well #4	0.09	14.3	776	7.38	290	354	96	0.211	NEG	1.38
Well #5	0.35	14.4	721	7.46	280	342	88	1.200	NEG	<1
Well #6	0.09	14.7	683	7.51	276	340	90	0.266	NEG	1.43
Well #7	0.16	13.8	711	7.55	284	342	90	0.326	NEG	1.43
Well #8	0.12	13.8	716	7.51	284	350	87	0.216	NEG	1.79
Well #9	0.19	14.1	738	7.43	288	354	93	0.660	NEG	1.46
Well #10	0.22	14.2	751	7.50	290	360	93	0.428	NEG	1.58
Well #11	1.28	12.0	788	7.33	308	382	102	5.730	NEG	<1
Well #12	0.03	13.5	693	7.52	282	356	88	0.071	NEG	1.96

POS = POSITIVE NEG = NEGATIVE OOS = OUT OF SERVICE

WELL WATER QUALITY

DECEMBER 2015

SOURCE	Iron	TEMP. Celsius	Cond.	pH	Total Alkalinity	Hardness	Calcium	N.T.U.	Total Coliform	NO3
Well #1	0.17	13.7	812	7.45	282	344	92	0.282	NEG	1.08
Well #2	0.40	12.9	821	7.31	314	374	95	1.010	NEG	<1
Well #3	0.29	13.5	836	7.29	306	378	106	1.930	NEG	1.23
Well #4	0.09	13.0	798	7.57	294	356	103	0.274	NEG	1.53
Well #5	0.30	13.9	733	7.46	280	346	90	0.864	NEG	<1
Well #6	0.13	14.1	684	7.44	280	348	92	0.130	NEG	1.52
Well #7	0.25	13.5	716	7.51	284	352	98	1.080	NEG	1.47
Well #8	0.01	12.6	699	7.62	286	350	92	0.139	NEG	1.97
Well #9	0.17	12.8	736	7.42	286	362	97	0.903	NEG	1.34
Well #10	0.21	12.5	735	7.50	288	346	91	0.342	NEG	1.58
Well #11	1.21	12.1	786	7.27	310	384	99	5.160	NEG	<1
Well #12	0.09	13.2	694	7.66	278	342	98	0.204	NEG	1.88

POS = POSITIVE NEG = NEGATIVE OOS = OUT OF SERVICE

SPRINGFIELD, OHIO

MONITORING WELL ANALYSIS

2015

MONITORING WELL WATER QUALITY

1st HALF

SOURCE	DATE	Temp C	Cond.	pH	Total Alkalinity	Hardness	Calcium	NO3	Fe	NTU
well #1	4/14/2015	13.7	911	6.90	340	398	106	1.04	0.03	0.108
well #2	4/14/2015	11.4	851	7.25	326	438	118	<1	0.06	0.397
well #3	4/15/2015	11.8	796	7.32	314	440	107	<1	2.45	28.1
well #4	4/15/2015	12.5	802	7.23	346	438	115	<1	1.17	7.53
well #5	4/15/2015	10.4	824	7.19	348	416	114	1.13	0.02	0.879
well #6	4/14/2015	12.1	905	7.23	306	408	116	<1	2.19	15.1
well #7	No Longer In Use									
well #8	4/15/2015	11.7	709	7.40	302	360	98	6.04	0.10	0.191
well #9	4/15/2015	12.9	731	7.47	328	376	99	<1	0.26	1.67

MONITORING WELL WATER QUALITY

2nd HALF

SOURCE	DATE	Temp C	Cond.	pH	Total Alkalinity	Hardness	Calcium	NO3	Fe	NTU
well #1	10/12/15	13.8	845	7.22	348	404	105	1.18	0.00	0.077
well #2	10/12/15	13.4	809	7.27	318	434	118	<1	0.07	0.095
well #3	10/13/15	12.7	804	7.23	318	430	111	<1	2.89	9.150
well #4	10/13/15	12.8	806	7.18	362	432	117	<1	0.60	1.990
well #5	10/13/15	14.7	836	7.09	374	456	126	<1	0.33	0.338
well #6	10/14/15	13.2	906	7.16	320	418	119	<1	2.38	2.870
well #7	No Longer In Use									
well #8	10/14/15	13.4	723	7.29	308	374	104	8.70	0.02	0.086
well #9	10/14/15	13.6	730	7.41	342	396	102	<1	0.41	0.191

2015 1st half	Contaminants	Units	Well #1 Eagle City	Well #2 Turnall	Well #3 River (D)	Well #4 River (S)	Well #5 River Rd	Well #6 Woodrow	Well #7 UVP	Well #8 St. Paris(S)	Well #9 St. Paris(D)	MCL mg/L
Arsenic, tot.	Arsenic	µg/L	BDL	BDL	0.00664	BDL	BDL	BDL		BDL	BDL	0.01
Cadmium, tot.	Cadmium	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.005
Mercury, tot.	Mercury	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.002
ICP Metals, Drinking Water	Aluminum	mg/L										.05-.2
	Barium	µg/L	0.384	0.0662	0.0649	0.138	0.134	0.13		0.192	0.22	2
	Beryllium	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.004
	Chromium	mg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.1
	Copper	mg/L										1.3
	Iron	mg/L										0.3
	Manganese	mg/L										0.05
	Nickel	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Zinc	mg/L										5
Antimony, tot.	Antimony	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.006
Lead, tot.	Lead	µg/L										0.015
Selenium, tot.	Selenium	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		0.00585	BDL	0.05
Thallium, tot.	Thallium	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.002
Cyanide, tot.	Cyanide	mg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.2
Chloride	Chloride	mg/L	73.1	21.7	25.9	21.6	28.9	77		17.9	16.1	250
Sodium	Sodium	mg/L	29.7	8.6	4.67	3.81	13.6	28		7.11	8.48	
GC/MS Volatiles	Nitrobenzene	µg/L										
	Dichlorodifluoromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Chloromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Vinyl chloride	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.002
	Bromomethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Chloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Trichlorofluoromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1-Dichloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Methylene chloride	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	trans-1,2-Dichloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Methyl tert-butyl ether	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1-Dichloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	cis-1,2-Dichloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Bromochloromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Chloroform	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	2,2-Dichloropropane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2-Dichloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1,1-Trichloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.2
	1,1-Dichloropropene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Carbon tetrachloride	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Benzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Dibromomethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2-Dichloropropane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Trichloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Bromodichloromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	cis-1,3-Dichloropropene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	trans-1,3-Dichloropropene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1,2-Trichloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.005
	Toluene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	1
	1,3-Dichloropropane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Dibromochloromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2-Dibromoethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Tetrachloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1,1,2-Tetrachloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Chlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Ethylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.7
	Bromoform	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Styrene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.1
	1,1,2,2-Tetrachloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2,3-Trichloropropane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Isopropylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Bromobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	n-Propylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	2-Chlorotoluene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	4-Chlorotoluene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,3,5-Trimethylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	tert-Butylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2,4-Trimethylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	sec-Butylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,3-Dichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,4-Dichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	4-Isopropyltoluene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2-Dichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	n-Butylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Xylenes (total)	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	10
	1,2,4-Trichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.07
	Naphthalene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Hexachlorobutadiene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2,3-Trichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Surr: 4-Bromofluorobenzene	%REC	101	101	102	102	103	102		103	102	
	Surr: 1,2-Dichlorobenzene-d4	%REC	103	100	106	105	107	107		108	106	
Fluoride	Fluoride	mg/L	0.490	0.38	0.257	BDL	0.02	0.291		BDL	BDL	4
SOCs	Alachlor	µg/L	ND	ND	ND	ND	ND	ND		ND	ND	0.002
	Atrazine	µg/L	ND	ND	ND	ND	ND	ND		ND	ND	0.003
	Simazine	µg/L	ND	ND	ND	ND	ND	ND		ND	ND	0.004
	Metolachlor	µg/L										
	Metribuzin	µg/L										
	Butachlor	µg/L										
	1,3-Dimethyl-2-nitrobenzene	%REC										
	Di (2-ethylhexyl) adipate	µg/L										0.4
	Di (2-ethylhexyl) phthalate	µg/L										0.006
	Tripheny phosphate	%REC										
	Perylene-d12	%REC										
	Benzo(a)pyrene	µg/L										

BDL = Below Detectable Limits
ND = Not Detected
ug/L = Parts Per Billion
mg/L = Parts Per Million
Surr: 4-Bromofluorobenzene > Lab
Surr: 1,2-Dichlorobenzene-d4 QC

2015 2nd half	Contaminants	Units	Well #1 Eagle City	Well #2 Turnall	Well #3 River (D)	Well #4 River (S)	Well #5 River Rd	Well #6 Woodrow	Well #7 UVP	Well #8 St. Paris(S)	Well #9 St. Paris(D)	MCL mg/L
Arsenic, tot.	Arsenic	µg/L	BDL	BDL	0.0057	BDL	BDL	BDL		BDL	BDL	0.01
Cadmium, tot.	Cadmium	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.005
Mercury, tot.	Mercury	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.002
ICP Metals, Drinking Water	Aluminum	mg/L										.05-.2
	Barium	µg/L	0.314	0.0517	0.0466	0.12	0.129	0.111		0.18	0.158	2
	Beryllium	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.004
	Chromium	mg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.1
	Copper	mg/L										1.3
	Iron	mg/L										0.3
	Manganese	mg/L										0.05
	Nickel	µg/L	BDL	0.005	BDL	BDL	BDL	BDL		BDL	BDL	
	Zinc	mg/L										5
Antimony, tot.	Antimony	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.006
Lead, tot.	Lead	µg/L										0.015
Selenium, tot.	Selenium	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		0.00884	BDL	0.05
Thallium, tot.	Thallium	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.002
Cyanide, tot.	Cyanide	mg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.2
Chloride	Chloride	mg/L	25.6	17	22.4	21.6	18.6	72.6		14.9	14.3	250
Sodium	Sodium	mg/L	22.8	7.69	3.9	4	4.11	30.2		6.71	6.49	
GC/MS Volatiles	Nitrobenzene	µg/L										
	Dichlorodifluoromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Chloromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Vinyl chloride	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.002
	Bromomethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Chloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Trichlorofluoromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1-Dichloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Methylene chloride	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	trans-1,2-Dichloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Methyl tert-butyl ether	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1-Dichloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	cis-1,2-Dichloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Bromochloromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Chloroform	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	2,2-Dichloropropane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2-Dichloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1,1-Trichloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.2
	1,1-Dichloropropene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Carbon tetrachloride	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Benzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Dibromomethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2-Dichloropropane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Trichloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Bromodichloromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	cis-1,3-Dichloropropene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	trans-1,3-Dichloropropene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1,2-Trichloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.005
	Toluene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	1
	1,3-Dichloropropane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Dibromochloromethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2-Dibromoethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Tetrachloroethene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,1,1,2-Tetrachloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Chlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Ethylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.7
	Bromoform	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Styrene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.1
	1,1,2,2-Tetrachloroethane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2,3-Trichloropropane	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Isopropylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Bromobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	n-Propylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	2-Chlorotoluene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	4-Chlorotoluene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,3,5-Trimethylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	tert-Butylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2,4-Trimethylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	sec-Butylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,3-Dichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,4-Dichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	4-Isopropyltoluene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2-Dichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	n-Butylbenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Xylenes (total)	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	10
	1,2,4-Trichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	0.07
	Naphthalene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Hexachlorobutadiene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	1,2,3-Trichlorobenzene	µg/L	BDL	BDL	BDL	BDL	BDL	BDL		BDL	BDL	
	Surr: 4-Bromofluorobenzene	%REC	92.9	88	95.4	93.9	115	92		93.9	93.7	
	Surr: 1,2-Dichlorobenzene-d4	%REC	93.4	88.9	97.1	93.8	112	92.9		93.2	93.4	
Fluoride	Fluoride	mg/L	0.269	0.390	0.245	BDL	0.215	0.289		BDL	BDL	4
SOCs	Alachlor	µg/L	ND	ND	ND	ND	ND	ND		ND	ND	0.002
	Atrazine	µg/L	ND	ND	ND	ND	ND	ND		ND	ND	0.003
	Simazine	µg/L	ND	ND	ND	ND	ND	ND		ND	ND	0.004
	Metolachlor	µg/L										
	Metribuzin	µg/L										
	Butachlor	µg/L										
	1,3-Dimethyl-2-nitrobenzene	%REC										
	Di (2-ethylhexyl) adipate	µg/L										0.4
	Di (2-ethylhexyl) phthalate	µg/L										0.006
	Tripheny phosphate	%REC										
	Perylene-d12	%REC										
	Benzo(a)pyrene	µg/L										

BDL = Below Detectable Limits
ND = Not Detected
ug/L = Parts Per Billion
mg/L = Parts Per Million
Surr: 4-Bromofluorobenzene
Surr: 1,2-Dichlorobenzene-d4 > Lab QC

MAINTENANCE SUMMARY
2015

The Water Treatment Plant (WTP) maintenance staff perform a broad range of duties in their efforts to ensure proper upkeep and operation of the water treatment facilities. Responsibilities include maintenance and repair of all process equipment, pumps, motors, instrumentation, electrical components, grounds, buildings, elevated tanks, and booster stations.

Staffing for maintenance operations includes three Maintenance Mechanic II's, two Electrical Technician II's, and four Relief / Swing Shift Operators when not on shift assignment. An annual seasonal position is used primarily for grounds upkeep, which includes approximately 61 acres of mowing and weed control. Mr. Jim Cooley, Plant Electrical Technician II, resigned this year, leaving the position open until a suitable candidate can be found.

In 2015, the maintenance staff continued with updating the coating system of the pipes in the filter building and completed the section of piping leading from our High Service Pumps to the distribution system. As conditions allow, we will continue to make our way through the building, re-coating the piping using the 10 State Standards as our guide to properly identify areas of the treatment process.

With the importance of tracking water usage, plant staff replaced all prop type water meters contained within the well field. Magnetic flow meters were chosen as the best alternative for measuring the flow from each well. Compared to prop meters, magnetic flow meters do not have moving parts contained within them. This increases the reliability of this type of meter and the accuracy of metered results. Preparation to replace the venturi type meters located on the transmission lines, which feed finished potable water to the city, was done by plant staff with expectations for completion in 2016. While similar to magnetic meters in that venturi meters have no moving parts contained within them, these meters do rely on the accurate measurement of very small pressure differences, which requires frequent and accurate calibration of pressure transmitters in order to determine the rate of flow through the pipeline. With the complete replacement of all meters to magnetic meters, we will see more accurate results and spend less time on calibration and maintenance.

The need to replace two vertical turbine pumps that facilitate recycling of filter wash water arose this year, with one pump failing due to a broken shaft, and the second pump determined to be of inadequate size/capacity. After reviewing quotes, Blessing Pump Service, a local vendor, was selected to provide the pumps and associated material. Plant staff were tasked with providing the labor and expertise for removing and replacing the pumps.

Plant staff completed the refurbishment of the building, located at the Springfield-Beckley Municipal Airport, which is used for maintaining chlorine residuals within the airport facilities.

Springfield's Information Technology staff provided the expertise for choosing the computers needed that would allow us to upgrade our Windows operating system while maintaining the needed capacity to control plant functions. After purchasing the computers and updating all associated software, Burgess and Niple was selected to perform the software and computer installations throughout our facility.

In addition to annual basin cleaning and maintenance, plant staff completed numerous in-house projects, including the rebuilding of a flock paddle in the South Secondary Basin, and concrete repair to the loading dock and sidewalks.

In the fall of 2015, Triec Electric replaced the insulators contained within the sub-station associated with the 69kV electric service to the facility. During this time, the newly installed 2.25MW generator was relied upon to provide power for the plant in its entirety for five straight days.

Deteriorating conditions of the original glass block windows in the Filter Building led to contracting with local vendor Above All Glass to install new, more efficient windows with etched glass. The location of the windows provided a challenge for the contractor to ensure no foreign material was able to enter the water in the filters. With proper planning and preparation this obstacle was easily covered.

Continuing in 2016 with daily maintenance duties that keep our plant in top operating condition, the Water Treatment Plant looks forward to the completed installation of the magnetic meters for the transmission lines feeding the city. As with any aging infrastructure, we also look forward to making repairs to the aging basins in order to continue to provide the best possible service to the city's consumers.

Our appreciation continues to go to the plant staff for their continuing effort and cooperation in maintaining Springfield's Water Treatment Plant as we endeavor to provide the safest and highest quality drinking water possible to our consumers.

Thank you,

Larry Marks
WTP Assistant Superintendent