

National Primary Drinking Water Regulation Compliance

This 2018 Annual Water Quality Report was prepared by Michael Doyle and Gina Hall of the City of Florence Water/Wastewater Department using technical assistance and guidance from the American Water Works Association (AWWA), the National Rural Water Association (NRWA), United States Environmental Protection Agency (USEPA), and the Alabama Department of Environmental Management (ADEM).

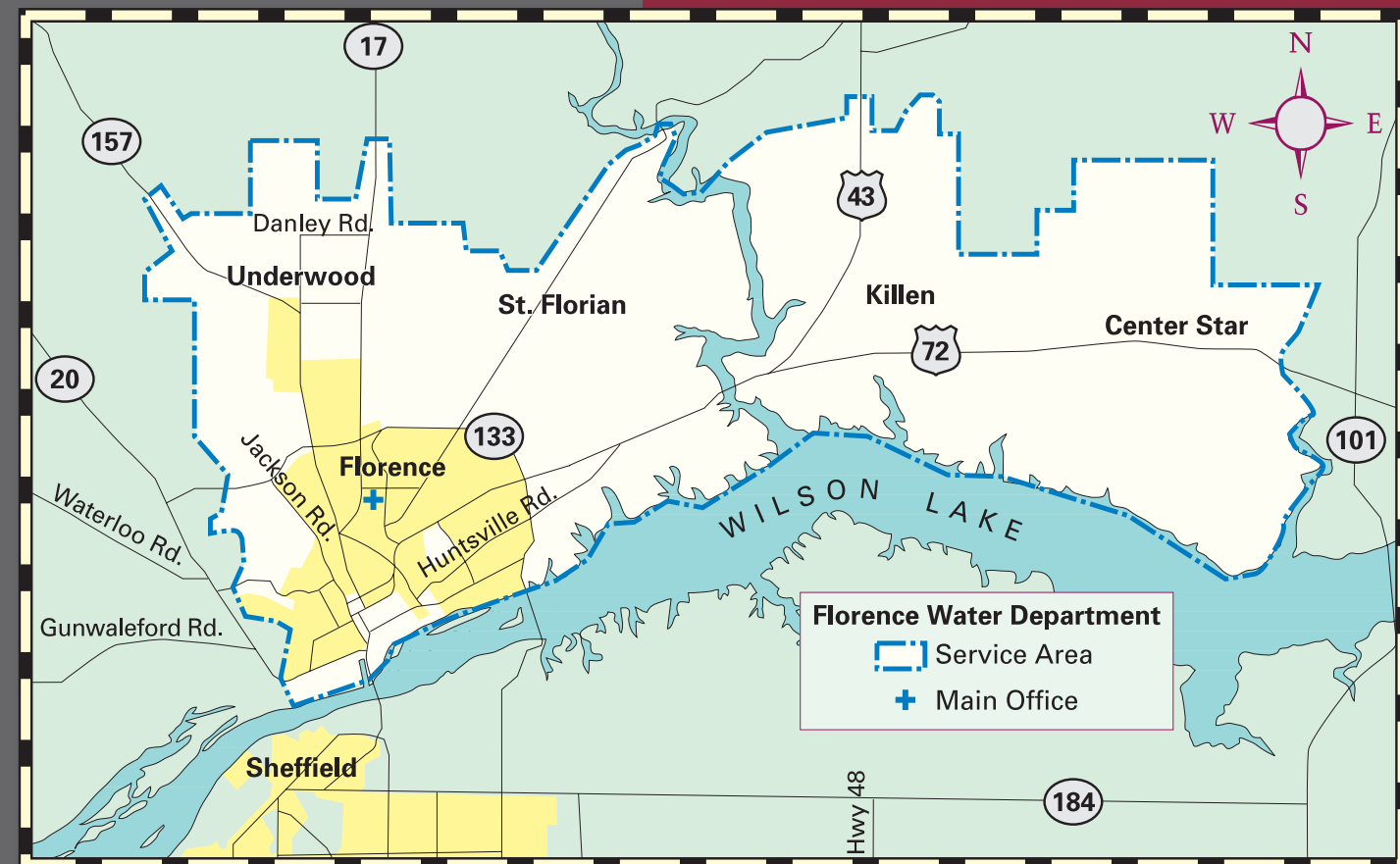
We will be pleased to answer any questions about the City of Florence Water Department and our water quality. Call our offices at (256) 760-6490 on Monday through Friday between the hours of 8:00 a.m. and 5:00 p.m. The City of Florence Water/Wastewater Department operates under the authority of the Mayor and Council of the City of Florence, Alabama. The City Council meets at 5:00 p.m. on every 1st and 3rd Tuesday of each month at 110 W. College Street.

Learn more about the City of Florence Water Department water system at... www.florenceutilities.com/Gas_Water/



City of Florence, Alabama
P.O. Box 1023, Florence, AL 35631
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2018 Annual Water Quality Report



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THE CITY OF FLORENCE
WATER DEPARTMENT

2018 Annual Water Quality Report

The City of Florence Water/Wastewater Department is pleased to provide you, our customer, our annual Water Quality Report. The City of Florence Water Department is committed to providing the residents of Florence and Lauderdale County with the safest and highest quality drinking water possible. Daily testing is done at our treatment facilities using sophisticated equipment and the most advanced procedures, and the water produced by the City of Florence Water Department meets or surpasses both state and federal standards for both appearance and safety. This annual "Water Quality Report", which is required by the Safe Drinking Water Act (SDWA), tells you where your water comes from, what tests by independent laboratories show about it, and other information you should know about your drinking water.

But, most importantly:
The City of Florence's drinking water met or surpassed all federal and state drinking water standards during 2017.

For information about how you can participate in decisions or for general information about your drinking water, call us at (256) 760-6490 or consult our web site at www.florenceal.org. Information can also be obtained from the U.S. Environmental Protection Agency (EPA) Web site at www.epa.gov/safewater/.

Overview

The City of Florence's drinking water is supplied by surface water from the Tennessee River and Cypress Creek. Modern, state of the art surface water treatment facilities using the most up to date technology treats the water from these two sources. In addition, we pump ground water from two wells in the Killen and Center Star areas of Lauderdale County, which is blended with the treated surface water sources. The well sources supply these areas only in Killen.

The City of Florence utilizes mixing, flocculation, sedimentation and filtration in their treatment process. Also, chlorine is used for disinfection, fluoride for dental protection, and lime for pH treatment.

New Treatment Process added in 2014

The MIEX system was added as a simple solution for meeting U.S. Environmental Protection Agency's (EPA) disinfection by-product (DBP) removal by employing a continuous ion exchange process. The process removes dissolved organic carbon (DOC) allowing for improved drinking water quality and regulatory compliance.

Tables of Primary Contaminants

Contaminant	MCL	Amount Detected
Bacteriological		
Total Coliform Bacteria	< 5%	5%
Turbidity	TT	.16
Fecal Coliform and E. Coli	0	0
Fecal Indicator ^S (enterococci or coliphage)	TT	0

Contaminant	MCL	Amount Detected
Radiological		
Beta/Photon emitters (mrem/yr)	4	ND
Alpha emitters (pCi/l)	15	ND
Combined radium (pCi/l)	5	ND
Uranium	30	ND

Contaminant	MCL	Amount Detected
Inorganic		
Antimony	.006	ND
Arsenic	.01	ND
Asbestos (MFL)	7	ND
Barium	2	ND
Beryllium	.004	ND
Bromate	.010	ND
Cadmium	.005	ND
Chloramines	4	ND
Chlorine	4	2.2
Chlorine Dioxide	.8	ND
Chlorite	1	ND
Chromium	.1	ND
Copper	.050	ND
Cyanide	.2	ND
Fluoride	4	.58
Lead	.015	ND
Mercury	.002	ND
Nitrate	10	.6
Nitrite	1	ND
Total Nitrate and Nitrite	10	ND
Selenium	.05	ND
Thallium	.002	ND

What do these tables mean?

It's easy! Our water is tested to assure that it is safe and healthy. The **Table of Primary Contaminants** provides an overview of some primary contaminants that are known to pose a health risk to humans. In the **Table of Detected Contaminants**, the column marked Amount Detected shows the highest test results during the year. Sources of Contaminant Level show where this substance usually originates. The **Table of Secondary Contaminants** lists regulated contaminants that may cause cosmetic or aesthetic effects in drinking water. Columns headed MCL and MCLG refer to:

Action Level: the concentration of a contaminant that triggers treatment or other requirements which a water system must follow.

Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available technology.

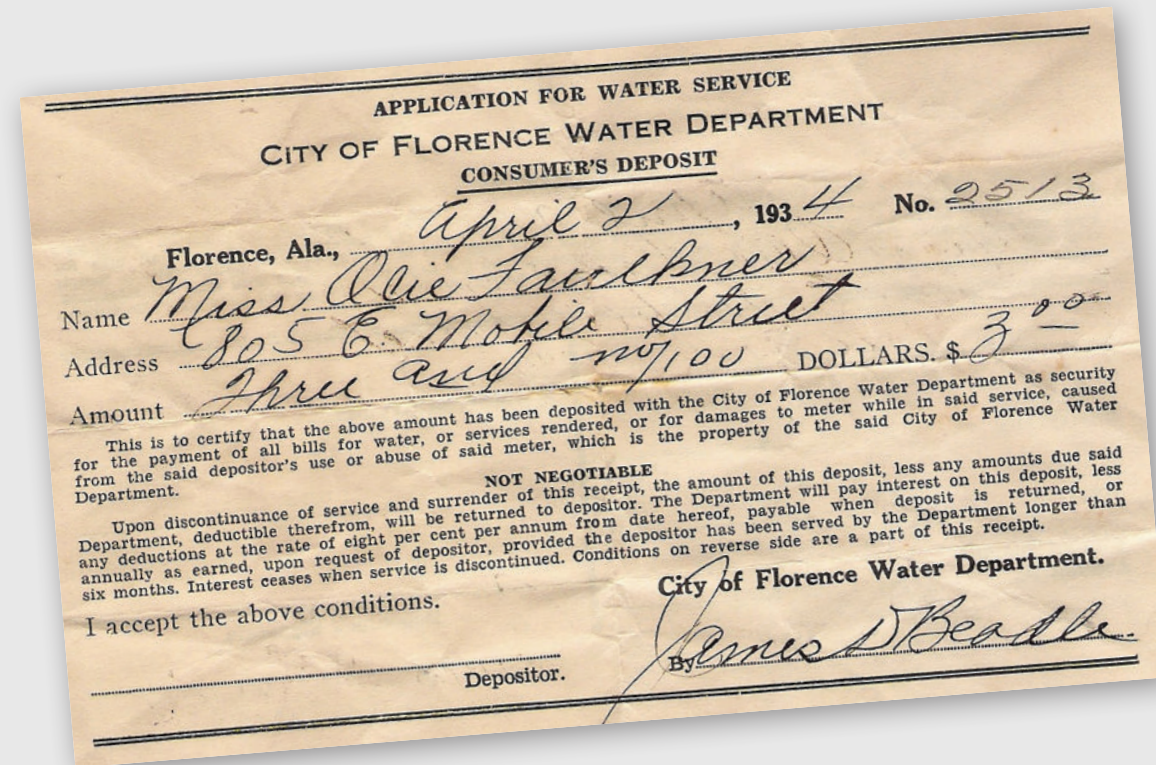
Maximum Contaminant Level Goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

At high levels some primary contaminants are known to pose a health risks to humans. These tables provides a quick glance of any primary contaminant detections.

Contaminant	MCL	Amount Detected	Contaminant	MCL	Amount Detected
Organic Chemicals					
Acrylamide	TT	ND	Ethylbenzene	.7	ND
Alachlor	.002	ND	Ethylene dibromide	.00005	ND
Atrazine	.003	ND	Glyphosate	.7	ND
Benzene	.005	ND	HAA5	60	17.7
Benzo(a)pyrene[PAHs]	.0002	ND	Heptachlor	.0004	ND
Carbofuran	.04	ND	Heptachlor epoxide	.0002	ND
Carbon Tetrachloride	.005	ND	Hexachlorobenzene	.001	ND
Chlordane	.002	ND	Hexachlorocyclopentadiene	.05	ND
Chlorobenzene	.1	ND	Lindane	.0002	ND
2,4-D	.070	ND	Methoxychlor	.04	ND
Dalapon	.2	ND	Oxamyl [Vydate]	.2	ND
Dibromochloropropane	.0002	ND	Pentachlorophenol	.001	ND
o-Dichlorobenzene	.6	ND	Picloram	.5	ND
p-Dichlorobenzene	.075	ND	Polychlorinated biphenyls PCBs	.0005	ND
1,2-Dichloroethane	.005	ND	Simazine	.004	ND
1,1-Dichloroethylene	.007	ND	Styrene	.1	ND
cis-1,2-Dichloroethylene	.07	ND	Tetrachloroethylene	.005	ND
trans-1,2-Dichloroethylene	.1	ND	Toluene	1	ND
Dichloromethane	.005	ND	TOC	TT	.09
1,2-Dichloropropane	.005	ND	TTHM	80	52.2
Di-(2-ethylhexyl)adipate	.4	ND	Toxaphene	.003	ND
Di-(2-ethylhexyl)phthalate	.006	ND	2,4,5-TP (Silvex)	.05	ND
Dinoseb	.007	ND	1,2,4-Trichlorobenzene	.07	ND
Dioxin[2,3,7,8-TCDD]	.00000003	ND	1,1,1-Trichloroethane	.2	ND
Diquat	.02	ND	1,1,2-Trichloroethane	.005	ND
Endothall	.1	ND	Trichloroethylene	.005	ND
Endrin	.002	ND	Vinyl Chloride	.002	ND
Epichlorohydrin	TT	ND	Xylenes	10	ND

Key to Tables

AL = Action Level	ND = Not Detected	TT = Treatment Technique, a required process intended to reduce the level of a contaminant in drinking water.
MCL = Maximum Contaminant Level	pci/l = picocuries per liter (a measure of radioactivity)	
MCLG = Maximum Contaminant Level Goal	ppm = parts per million, milligrams pr liter (mg/l)	
NTU = Nephelometric Turbidity Units	ppb = parts per billion, micrograms per liter (ug/l)	



In recognition of the bicentennial celebration of the City of Florence, Alabama, this year's report features photos of some of the Florence Water Department's relics. The images of the consumer's deposit (at left), the water tower ad and the old pumping station are courtesy of Robert Whitten. Photography by L. Wray Dillard.

Table of Secondary Contaminants

Contaminant	MCL	Unit	Amount Detected	Contaminant	MCL	Unit	Amount Detected
Alkalinity, Total	NA	ppm	57.6	Nickel	.01	ppm	<0.050
Aluminum	0.20	ppm	0.077	Odor	3.0	threshold odor number	<1
Calcium	NA	ppm	263.7	pH	NA	ppm	6.39
Carbon Dioxide	NA	ppm	1.6	Silver	0.10	ppm	<0.050
Chloride	250	ppm	17.15	Sodium, as Na	NA	ppm	6.05
Color	15.0	units	<5.0	Sulfate	500	ppm	8.75
Foaming Agents (MBAs)	0.50	ppm	<.05	Specific Conductance		umhos/cm	195
Hardness	NA	ppm	73.15	Total Dissolved Solids	500	ppm	86
Iron	0.30	ppm	<0.050	Zinc	5.0	ppm	<0.050
Magnesium	NA	ppm	3.42	Langelier Indes	NA		-2.16
Manganese	0.05	ppm	<0.010				

Table of Detected Contaminants

Contaminant	MCLG	MCL	Range	Violation	Amount Detected	Likely Sources of Contaminant(s)
Bacteriological — 01/01/2017 - 12/31/2017 *A Level I and Level II Assessment was completed.						
Total Coliform Bacteria	0	<5%		No	5%* Present or Absent	Naturally present in the environment
Turbidity	0	TT	0.01 - 0.20	No	0.24 NTU	Soil runoff
Inorganic Chemicals — 01/01/2017 - 12/31/2017						
Chlorine	4	4	.2 - 2.2		2.2 ppm	Disinfection
Fluoride	4	4	0.0 - .58	NO	.58 ppm	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate	10	10	.55 - .6	NO	.6 ppm	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits

Organic Chemicals — 01/01/2017 - 12/31/2017

HAA5	NA	60	10.1 - 17.7	NO	17.7 ppb	By-product of drinking water chlorination
TOC	NA	TT	.7 - 0.9	NO	0.9 ppb	Naturally present in the environment
TTHM	NA	80	19.2 - 52.2	NO	52.2 ppb	By-product of drinking water chlorination

CRYPTOSPORIDIUM & GIARDIA Cryptosporidium and Giardia are microscopic organisms found in surface water throughout the United States. Although filtration removes Cryptosporidium and Giardia, the most commonly-used filtration methods cannot guarantee 100 percent removal. Ingestion of may cause an abdominal infection. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised individuals, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immunocompromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium and Giardia must be ingested to cause disease, and it may be spread through means other than drinking water. Cryptosporidium and Giardia in at Florence's treatment plants are removed and/or treated by effective filtration and disinfection processes.

We monitored the **untreated source waters** for both Cryptosporidium and Giardia in 2017. The results are below:

Date Analyzed	Analysis Results Cypress Creek		Analysis Results Wilson Lake	
	Cryptosporidium	Giardia	Cryptosporidium	Giardia
01/2017	0.20 organisms/L	0.27 organisms/L	0.27 organisms/L	0.00 organisms/L
02/2017	0.00 organisms/L	1.60 organisms/L	0.00 organisms/L	0.00 organisms/L
03/2017	0.48 organisms/L	1.80 organisms/L	0.70 organisms/L	0.00 organisms/L
04/2017	0.10 organisms/L	0.29 organisms/L	0.98 organisms/L	0.00 organisms/L
05/2017	0.00 organisms/L	0.39 organisms/L	0.27 organisms/L	0.00 organisms/L
06/2017	0.00 organisms/L	0.67 organisms/L	0.27 organisms/L	0.00 organisms/L
07/2017	0.00 organisms/L	1.00 organisms/L	0.10 organisms/L	0.00 organisms/L
08/2017	0.00 organisms/L	0.19 organisms/L	0.00 organisms/L	0.00 organisms/L
09/2017	0.00 organisms/L	0.19 organisms/L	0.00 organisms/L	0.00 organisms/L

LEAD AND COPPER RULE MONITORING Lead and copper Rule (LCR) was developed to protect public health by minimizing lead and copper levels in drinking water. The LCR established an action level of 0.015 mg/l for lead and 1.3 mg/l for copper based on the 90th percentile level of tap water samples collected. Lead and copper are sampled on a mandated three year testing cycle with sampling conducted at customer's tap. Our 90th percentile for lead was <.005 mg/L. Our 90th percentile for copper was 0.115 mg/L.

LEAD 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 Florence 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 or at <https://www.epa.gov/ground-water-and-drinking-water/basic-information-about-lead-drinking-water>.

UNREGULATED CONTAMINANTS The City of Florence Water Department did not test, nor was it required to test, for Radon during 2017. However, there are other unregulated contaminants that were tested for in 2017 which can be found in this annual report.

ASBESTOS and DIOXIN Based on a study conducted by ADEM with the approval of the EPA, a statewide waiver for the monitoring of asbestos and dioxin was issued. Thus monitoring for these contaminants is not required.

SOURCE WATER ASSESSMENTS The City of Florence Water Department has performed source water assessments for the Wilson Lake Treatment Plant located on the Wilson Lake (Tennessee River) and the Cypress Creek Treatment Plant located on Cypress Creek. In addition, assessments have been completed for Peck Lane and Houston Hill's wells located in the Killen and Center Star areas. This information may be viewed in the Water Department office between the hours of 8:00 am to 5:00 pm, Monday through Friday. Appointments for reviewing are recommended.

Table of Non-Detected Substances

Florence Water Department tested for the following substances in 2017 but none were detected.	
Bis(2-ethylhexyl)phthalate	trans-1,2-Dichloroethene
Bromobenzene	1,3-Dichloropropane
Bromochloromethane	2,2-Dichloropropane
Bromoform	1,1-Dichloropropene
Bromomethane	1,3-Dichloropropene
n-Butylbenzene	Hexachlorobutadiene
sec-Butylbenzene	Isopropylbenzene
tert-Butylbenzene	4-Isopropyltoluene
Chloroethane	Methyl tert-butyl ether
Chloromethane	Naphthalene
2-Chlorotoluene	n-Propylbenzene
4-Chlorotoluene	1,1,1,2-Tetrachloroethane
Dibromomethane	1,1,1,2,2-Tetrachloroethane
1,2-Dichlorobenzene	Tetrachloroethene
1,3-Dichlorobenzene	Trichlorofluoromethane
1,4-Dichlorobenzene	Trichloroethene
Dichlorodifluoromethane	1,2,3-Trichlorobenzene
1,1-Dichloroethane	1,2,3-Trichloropropane
1,1-Dichloroethene	1,2,4-Trimethylbenzene
cis-1,2-Dichloroethene	1,3,5-Trimethylbenzene

Required Additional Health Information

To ensure that tap water is safe to drink, EPA prescribes limits on the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water.

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 (800-426-4791).

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 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:

- Microbiological contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be natural occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agricultural, storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.
- 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, EPA 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.

Some people may be more vulnerable to contaminants in drinking water than is 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 infections. 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 are available from the Safe Drinking Water Hotline (800-426-4791).