

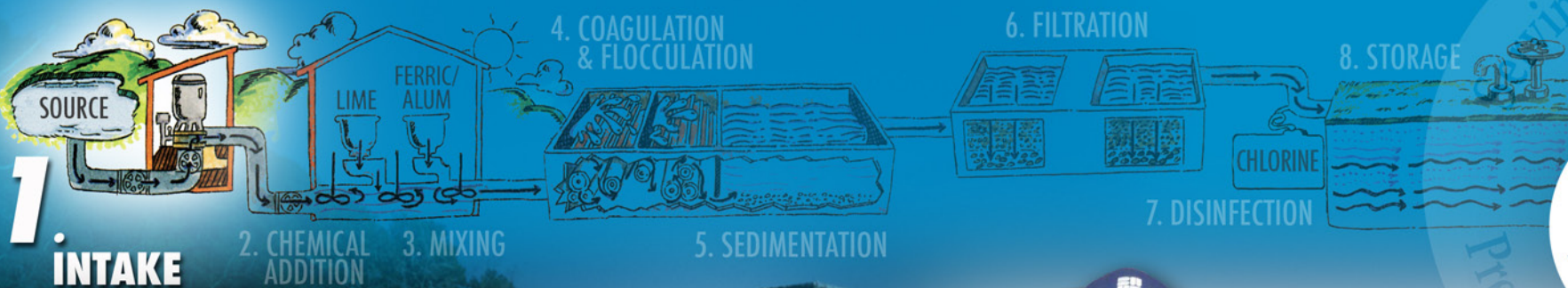
# FROM THE SOURCE



# TO THE TAP



Birmingham Water Works  
Annual Water Quality Report 2015



# 1 INTAKE

Water is taken from the source. Fish, plants and other debris are screened out and water is drawn into the treatment plant.

**DERRICK BARLOW**  
Water Resource Supervisor



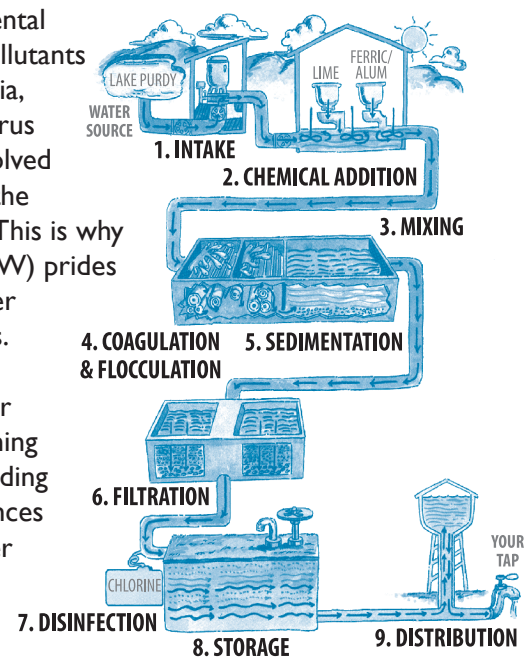
*"Our goal is to provide an adequate supply of raw water to BWW residential, commercial and industrial customers that's of the highest quality possible by efficiently operating and maintaining all facilities."*

**BIRMINGHAM WATER WORKS**



## INTRODUCTION

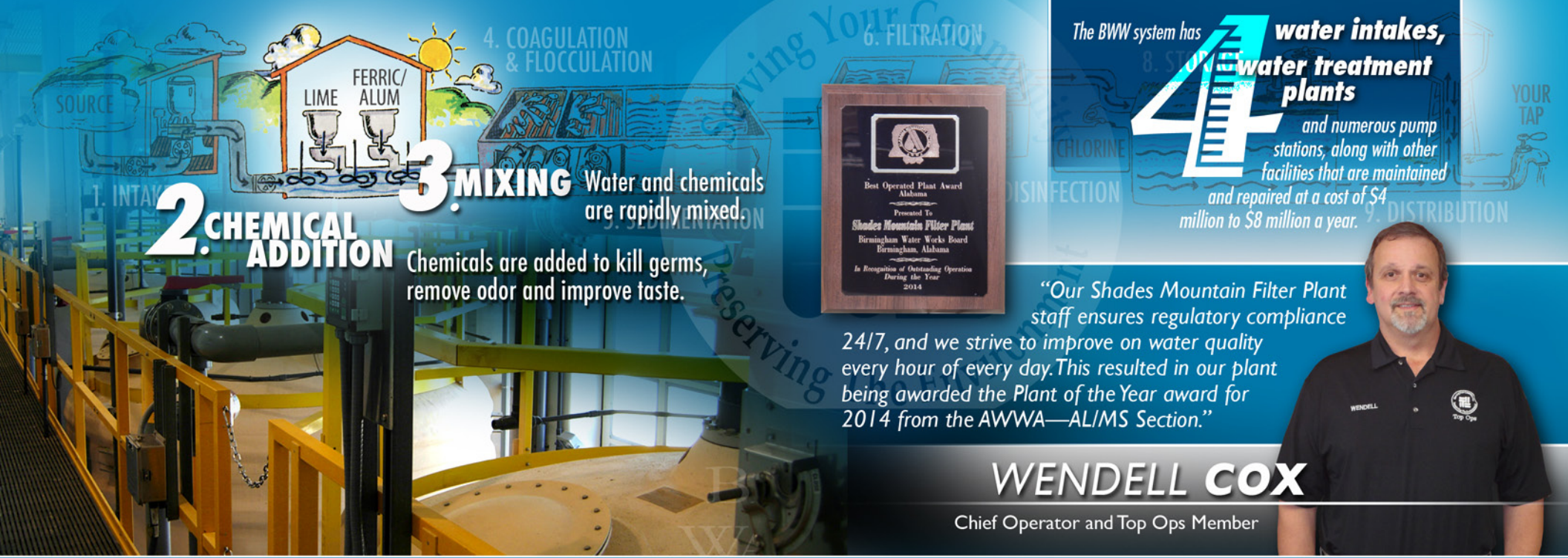
According to the U.S. Environmental Protection Agency (EPA), leading pollutants in our nation's water include bacteria, mercury, nutrients such as phosphorus and nitrogen, and low levels of dissolved oxygen, which are often caused by the decomposition of organic material. This is why the Birmingham Water Works (BWW) prides itself in doing what it takes to deliver the best quality water to customers. Being a leading utility in the state, the BWW often sets an example for smaller utilities by constantly searching for the best available technology, finding ways to exceed regulatory compliances and enforcing its own drinking water standards. The BWW recognizes that water is essential to life.



Water may be treated differently in different communities depending on the quality of water that enters the plant. Groundwater typically requires less treatment than water from lakes, rivers and streams. While viewing the water treatment process throughout this Water Quality Report, you can also view the BWW's various intakes in the Source Water Assessment section.

## INSIDE THIS REPORT

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The BWW system has **4** water intakes, **4** water treatment plants and numerous pump stations, along with other facilities that are maintained and repaired at a cost of \$4 million to \$8 million a year.



“Our Shades Mountain Filter Plant staff ensures regulatory compliance 24/7, and we strive to improve on water quality every hour of every day. This resulted in our plant being awarded the Plant of the Year award for 2014 from the AWWA—ALIMS Section.”



**WENDELL COX**

Chief Operator and Top Ops Member

## WHAT YOU NEED TO KNOW

### What is the Consumer Confidence Report?

The Consumer Confidence Report (CCR) is an annual report **required** by the EPA on the water quality of a particular water system such as the BWW. **The report details and outlines contaminants and their levels in drinking water.**

### Why am I getting this report?

The BWW is federally mandated by the EPA to provide this information to you. The Alabama Department of Environmental Management (ADEM) enforces these rules for the EPA. Regulated drinking water substances that were detected during the 2014 calendar year are provided in the report.

### Where can I get additional copies of this report?

You may obtain additional copies of the CCR at the BWWB Customer Service Center, by mail (upon request) or by visiting [www.bwwb.org](http://www.bwwb.org). For questions concerning the CCR, please call **Anton Jones at 205-244-4464.**

### Why authorities regulate contaminant levels?

In order to ensure that tap water is safe to drink, the EPA and ADEM prescribe regulations that limit the amount of certain substances in water provided by public water systems.

### For whom is this report produced?

The CCR is produced for customers and wholesalers of the BWW and ensures that everyone is provided safe drinking water.

### How much does it cost to receive this report?

This report is free of charge to all customers and stakeholders of the BWW.

## CCR: GOVERNMENT MANDATED

The Birmingham Water Works Board (BWWB), like water utilities across the U.S., is required by the EPA to send its customers this water quality report or CCR each year.

In 1996, Congress amended the Safe Drinking Water Act by adding a provision requiring all community water systems to deliver to their customers an annual water quality report, which contains information on the water system’s source water, the levels of any detected contaminants, compliance with drinking water rules and other educational information.

In 2014, as in years past, the BWWB met all state and federal regulations for water quality.



# 4. COAGULATION & FLOCCULATION

The particles stick together and form larger particles called floc.



"We strive for consistent quality and reliability in our everyday operations at Carson Filter Plant, and our plant has been awarded Partnership for Safe Water Phase III awards consecutively since 2006, as well as recognition awards for operations optimization."

## JEREMY HAWKINS

Senior Operator

# 5. SEDIMENTATION

The water and floc particles flow into a sedimentation basin. The floc then settles to the bottom and is removed from the water.



# 6. FILTRATION

The BWW has approximately **4,000 miles of pipe** in its system. That's almost equivalent to traveling from **Birmingham, Alabama to Unalaska, Alaska**, which is 4,003 miles away.



# 7. DISINFECTION

# 9. DISTRIBUTION

## OUR PEOPLE

### Board of Directors

- A. Jackie Robinson, III  
Chairman/President
- Sherry W. Lewis  
First Vice Chairman
- Ann D. Florie  
Second Vice Chairman
- Dr. George Munchus  
Secretary-Treasurer
- Kevin B. McKie, Esq.  
Assistant Secretary-Treasurer

### Executive Staff

- Mac Underwood, CPA  
General Manager
- Darryl R. Jones, P.E.  
Assistant General Manager  
Operations and Technical Services
- T.M. "Sonny" Jones, IV, P.E.  
Assistant General Manager  
Engineering and Maintenance
- Michael Johnson, CPA  
Assistant General Manager  
Finance and Administration

### EnviroLab Management

- Anton Jones, Sr., MSM, REM  
Manager of EnviroLab/Water Quality
- Drusilla Hudson, CSEM, CESCO  
Assistant Manager/Chief Chemist
- Stacy Littleton, CSEM, REM  
QA/QC Supervisor

### Water Quality Operations

- Will T. Moore, II  
Water Quality Superintendent

### Water Treatment

- Floyd Stephens  
Water Treatment Manager
- Johnnie P. Mayfield  
Industrial and Commercial Account Superintendent

## OUR MISSION

The Birmingham Water Works Board is committed to providing the highest quality water and service to our customers and our entire service area. As a concerned corporate citizen, we are responsive to the needs of the entire community and strive to maintain, preserve and conserve our precious water resources in order to ensure adequate water quality and supply for future generations.

The Western Filter Plant Filter Rehabilitation Project, in addition to other plant maintenance projects, amounted to **\$10 million in capital improvements**. Such projects allow the utility to deliver its customers the best quality water.



## 6. FILTRATION

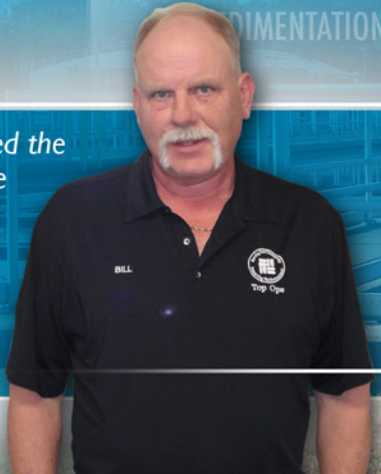
Water flows through filters. The filters are made of layers of anthracite coal, sand and gravel.

## 7. DISINFECTION

A small amount of chlorine or other disinfecting chemical is added to kill any remaining germs and keep the water safe as it travels to your house.



“The Putnam Filter Plant has been awarded the Partnership for Safe Water’s Phase III award for the past nine years, and will receive the award this year for the tenth consecutive year, a testament to our dedication to water quality excellence.”



## BILL SHIKLE

Senior Operator, AWWA AL/MS Section  
2014 Operator of the Year and Top Ops Member

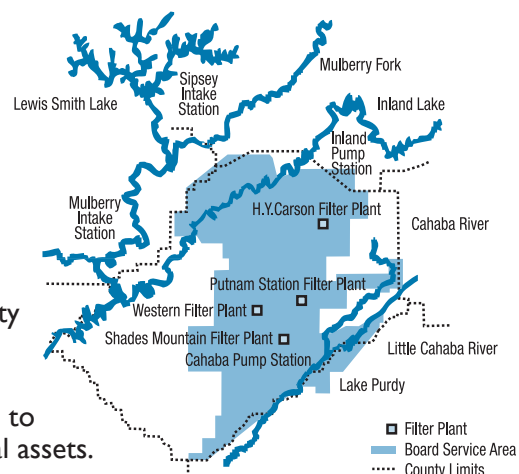


## SOURCE WATER ASSESSMENT

A source water assessment has been updated for the water system. It is available for review at the BWW’s main office during normal business hours. The following is a list of the sources of raw water along with the susceptibility rating of the contaminant source and the contaminant sources:

- Inland Lake – low susceptibility (septic tank); moderate susceptibility (boat launch)
- Cahaba River – moderate susceptibility (highways, secondary roads and railroad)
- Mulberry Fork – moderate susceptibility (septic tanks); high susceptibility (strip mining, bridge and highway)
- Sipsey Fork – moderate susceptibility (storm water runoff)

Service Area Map



The Birmingham Water Works Board is making a maximum effort to physically protect all of our critical assets.

## WHERE DOES MY WATER COME FROM?

### Black Warrior Basin

- Sipsey Fork
- Mulberry Fork
- Inland Lake / Blackburn Fork

### Cahaba Basin

- Big Cahaba River
- Little Cahaba River
- Lake Purdy

## SYSTEM INFORMATION FOR 2014

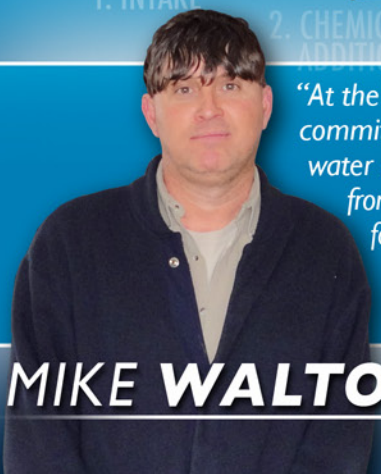
- Average gallons of water produced each day: **104.5 million\***
- People served: **600,000\***
- Square miles in service area: **759\***
- Miles of water main (pipes) in system: **4,000\***

\*Approximations

## ATTENTION CUSTOMERS

For any water quality concerns (e.g., muddy, cloudy, taste and odor in water) please call the Water Quality Department at 205-244-4381.

While in storage, nearly **72.5 million gallons** of water are housed inside of **51 water storage tanks** across the city. That's enough to fill up **3,625 swimming pools.**



**MIKE WALTON**

Senior Operator

*“At the Western Filter Plant, our attention to detail and commitment to excellence has resulted in numerous water quality awards, particularly the Phase IV award from AWWA’s Partnership for Safe Water, the highest achievement possible in the category.”*



**8. STORAGE**  
Water is stored in a closed tank before distribution.

**9. DISTRIBUTION**  
The BWW delivers an average of 100 million gallons of water per day to customers.

## DEFINITIONS

**ACTION LEVEL (AL)** – Concentration of contaminant that, when exceeded, triggers treatment of other requirements that a water system must follow.

**CONTAMINANT** – Any substance other than water. Note that contaminants, as defined, include dissolved minerals, purifying and dental health promotion additives.

**LOCATIONAL RUNNING ANNUAL AVERAGE (LRAA)** – The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters.

**MAXIMUM CONTAMINANT LEVEL (MCL)** – 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 treatment technology.

**MAXIMUM CONTAMINANT LEVEL GOAL (MCLG)** – Level of a contaminant in drinking water below in which there is no known or expected risk to health. MCLGs allow for a margin of safety.

**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 in 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.

**mg/L** – Milligrams per liter, or parts per million (ppm).

**RUNNING ANNUAL AVERAGE (RAA)** – Compliance period where an average of four consecutive quarterly samples are used.

**TOC** – Total Organic Carbon.

**TOTAL HALOACETIC ACIDS (HAA5)** – By-product of drinking water chlorination.

**TOTAL TRIHALOMETHANES (TTHM)** – By-product of drinking water chlorination.

**TREATMENT TECHNIQUE (TT)** – Required process intended to reduce the level of a contaminant in drinking water.

**TURBIDITY** – Measure of the clarity of water as it relates to its particle content.

**ug/L** – Micrograms per liter, or parts per billion (ppb).

**VARIANCE AND EXEMPTIONS** – ADEM or EPA permission not to meet an MCL or treatment technique under certain conditions.

## ABBREVIATIONS

- NA:** Not Applicable
- CDC:** Centers for Disease Control
- ND:** Not Detected
- NTU:** Nephelometric Turbidity Unit
- EPA:** Environmental Protection Agency
- ADEM:** Alabama Department of Environmental Management

# WATER QUALITY DATA

2014 Chemical Analysis						
Standard List Of Primary Drinking Water Contaminants For CCR						
Primary Drinking Water Standards - Limits are set based on public health effects.						
Total Coliform Bacteria	MCL	Distribution System Microbiological Substance (Regulated)				
	Presence of Coliform bacteria is < 5% of monthly samples	Bacteriological				
The highest percentage of bacteria in the distribution system for one month was 1.23% (4 out of 325 samples). All locations that tested positive for Coliform bacteria were tested for <i>E. coli</i> . <i>E. coli</i> was not detected in any of these samples. All locations that tested positive for Coliform bacteria were resampled and all resamples were negative.						
Inorganic Chemicals and Radiological						
Parameters (mg/L)	MCL	Carson Highest	Putnam Highest	Shades Mountain Highest	Western Highest	
Antimony	0.006	ND	ND	ND	ND	ND
Arsenic	0.01	ND	ND	ND	ND	ND
Barium	2	ND	ND	ND	ND	ND
Beryllium	0.004	ND	ND	ND	ND	ND
Cadmium	0.005	ND	ND	ND	ND	ND
Chlorine	4	2.70	2.40	2.60	2.56	2.56
Chromium	0.1	ND	ND	ND	ND	ND
Copper	1.3	ND	ND	0.038	0.002	0.002
Cyanide	0.2	ND	ND	ND	ND	ND
Fluoride	4	0.76	0.76	0.92	0.82	0.82
Gross Alpha (pCi/L)	15	ND	ND	1.3	ND	ND
Lead	0.015	ND	ND	ND	ND	ND
Mercury	0.002	ND	ND	ND	ND	ND
Nitrate as N	10	0.33	0.32	0.28	0.69	0.69
Nitrite as N	1	ND	ND	ND	ND	ND
Radium 226 (pCi/L)	5	0.1	0.1	0.2	ND	ND
Radium 228 (pCi/L)	5	ND	ND	ND	ND	ND
Selenium	0.05	ND	ND	ND	ND	ND
Thallium	0.002	ND	ND	ND	ND	ND
Total Nitrate/Nitrite	10	0.33	0.32	0.28	0.69	0.69
Turbidity (NTU)	0.3 (TT)	0.143	0.230	0.190	0.210	0.210
Regulated Organic Chemicals						
Parameters (µg/L)	MCL	Carson Highest	Putnam Highest	Shades Mountain Highest	Western Highest	
1,1 Dichloroethylene	7	ND	ND	ND	ND	ND
1,1,1 Trichloroethane	200	ND	ND	ND	ND	ND
1,1,2 Trichloroethane	5	ND	ND	ND	ND	ND
1,2 Dichloroethane	5	ND	ND	ND	ND	ND
1,2 Dichloropropane	5	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	70	ND	ND	ND	ND	ND
2,4,5-TP (Silvex)	50	ND	ND	ND	ND	ND
2,4-D	70	ND	ND	ND	ND	ND
Alachlor	2	ND	ND	ND	ND	ND
Atrazine	3	ND	ND	ND	ND	ND
Benzene	5	ND	ND	ND	ND	ND
Benzo(a)pyrene	0.2	ND	ND	ND	ND	ND
Carbofuran	40	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND	ND
Chlordane	2	ND	ND	ND	ND	ND
Chlorobenzene	100	ND	ND	ND	ND	ND
Cis-1,2 Dichloroethylene	70	ND	ND	ND	ND	ND
Dalapon	200	ND	ND	ND	ND	ND
Di (2-Ethylhexyl) Adipate	400	ND	ND	ND	ND	ND
Di (2-Ethylhexyl) Phthalate	6	ND	ND	2.6	ND	ND
Dibromochloropropane	0.2	ND	ND	ND	ND	ND
Dichloromethane	5	ND	ND	ND	ND	ND
Dinoseb	7	ND	ND	ND	ND	ND
Diquat	20	ND	ND	ND	ND	ND
Endothall	100	ND	ND	ND	ND	ND
Endrin	2	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND
Ethylene Dibromide (EDB)	0.05	ND	ND	ND	ND	ND
Glyphosate	700	ND	ND	ND	ND	ND
Heptachlor	0.4	ND	ND	ND	ND	ND
Heptachlor Epoxide	0.2	ND	ND	ND	ND	ND
Hexachlorobenzene	1	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	50	ND	ND	ND	ND	ND
Lindane	0.2	ND	ND	ND	ND	ND
Methoxychlor	40	ND	ND	ND	ND	ND
o-Dichlorobenzene	600	ND	ND	ND	ND	ND
Oxamyl (Vydate)	200	ND	ND	ND	ND	ND
PCB, 1016	0.5	ND	ND	ND	ND	ND

1,1 Dichloroethylene	7	ND	ND	ND	ND	ND
1,1,1 Trichloroethane	200	ND	ND	ND	ND	ND
1,1,2 Trichloroethane	5	ND	ND	ND	ND	ND
1,2 Dichloroethane	5	ND	ND	ND	ND	ND
1,2 Dichloropropane	5	ND	ND	ND	ND	ND
1,2,4-Trichlorobenzene	70	ND	ND	ND	ND	ND
2,4,5-TP (Silvex)	50	ND	ND	ND	ND	ND
2,4-D	70	ND	ND	ND	ND	ND
Alachlor	2	ND	ND	ND	ND	ND
Atrazine	3	ND	ND	ND	ND	ND
Benzene	5	ND	ND	ND	ND	ND
Benzo(a)pyrene	0.2	ND	ND	ND	ND	ND
Carbofuran	40	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	ND	ND	ND	ND	ND
Chlordane	2	ND	ND	ND	ND	ND
Chlorobenzene	100	ND	ND	ND	ND	ND
Cis-1,2 Dichloroethylene	70	ND	ND	ND	ND	ND
Dalapon	200	ND	ND	ND	ND	ND
Di (2-Ethylhexyl) Adipate	400	ND	ND	ND	ND	ND
Di (2-Ethylhexyl) Phthalate	6	ND	ND	2.6	ND	ND
Dibromochloropropane	0.2	ND	ND	ND	ND	ND
Dichloromethane	5	ND	ND	ND	ND	ND
Dinoseb	7	ND	ND	ND	ND	ND
Diquat	20	ND	ND	ND	ND	ND
Endothall	100	ND	ND	ND	ND	ND
Endrin	2	ND	ND	ND	ND	ND
Ethylbenzene	700	ND	ND	ND	ND	ND
Ethylene Dibromide (EDB)	0.05	ND	ND	ND	ND	ND
Glyphosate	700	ND	ND	ND	ND	ND
Heptachlor	0.4	ND	ND	ND	ND	ND
Heptachlor Epoxide	0.2	ND	ND	ND	ND	ND
Hexachlorobenzene	1	ND	ND	ND	ND	ND
Hexachlorocyclopentadiene	50	ND	ND	ND	ND	ND
Lindane	0.2	ND	ND	ND	ND	ND
Methoxychlor	40	ND	ND	ND	ND	ND
o-Dichlorobenzene	600	ND	ND	ND	ND	ND
Oxamyl (Vydate)	200	ND	ND	ND	ND	ND
PCB, 1016	0.5	ND	ND	ND	ND	ND

# WATER QUALITY DATA

2014 Chemical Analysis						
Standard List Of Primary Drinking Water Contaminants For CCR						
Primary Drinking Water Standards - Limits are set based on public health effects.						
Regulated Organic Chemicals						
Parameters (µg/L)	MCL	Carson Highest	Putnam Highest	Shades Mountain Highest	Western Highest	
PCB, 1221	0.5	ND	ND	ND	ND	ND
PCB, 1232	0.5	ND	ND	ND	ND	ND
PCB, 1242	0.5	ND	ND	ND	ND	ND
PCB, 1248	0.5	ND	ND	ND	ND	ND
PCB, 1254	0.5	ND	ND	ND	ND	ND
PCB, 1260	0.5	ND	ND	ND	ND	ND
p-Dichlorobenzene	75	ND	ND	ND	ND	ND
Pentachlorophenol	1	ND	ND	ND	ND	ND
Picloram	500	ND	ND	ND	ND	ND
Simazine	4	ND	ND	ND	ND	ND
Styrene	100	ND	ND	ND	ND	ND
Tetrachloroethylene	5	ND	ND	ND	ND	ND
Toluene	1000	ND	ND	ND	ND	ND
Total Haloacetic Acids	60	20.5	13.6	21.4	27.6	
Total Trihalomethanes	80	16.9	12.6	30.6	47.8	
Toxaphene	3	ND	ND	ND	ND	ND
Trans-1,2 Dichloroethylene	100	ND	ND	ND	ND	ND
Trichloroethylene	5	ND	ND	ND	ND	ND
Vinyl Chloride	2	ND	ND	ND	ND	ND
Xylenes	10,000	ND	ND	ND	ND	ND
Running Annual Average for System Wide Stage 2 Sites						
	MCL	RAA				
Total Trihalomethanes (µg/L)	System-wide Running Annual Average (RAA); 80 µg/L	31.5				

TOC Step Removal for Filter Plants						
	MCL	Carson	Putnam	Shades Mountain	Western	
Total Haloacetic Acids (µg/L)	System-wide Running Annual Average (RAA); 60 µg/L	25.2				
Total Organic Carbon (TOC)	4 (TT)	1.00	1.00	2.00	1.00	

TOC Step Removal is based on percent reduction of TOC and value of alkalinity in raw water.

- The most recent testing for Lead and Copper Compliance within the distribution system was from June – September 2013. This testing was done in accordance with applicable regulations. The 90th percentile lead sample was <0.0025 mg/L. No lead samples exceeded the action level. The 90th percentile copper sample was 0.218 mg/L. No copper samples exceeded the action level.
- 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 Birmingham Water Works Board (BWWVB) 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>.
- The BWWVB uses acrylicamide based polymers in its solids handling operations.
- 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 was not required.

- On April 9 and April 10, 2014, Shades Mountain Filter Plant experienced an elevated level of a secondary contaminant (soluble manganese) in the source water entering the plant. The result was an elevated reading above the maximum contaminant level in the finished water. The plant came back into compliance on April 11, 2014.
- The Birmingham Water Works Board is required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. During the time frame of March 31 to May 20, 2014, we did not record turbidity readings from Filter # 22 at Shades Mountain Filter Plant, and therefore cannot be sure of the quality of your drinking water during that time.
- The Birmingham Water Works Board has corrected the instrumentation malfunction problem and has monitored for the required contaminants properly since the non-compliance occurred.
- Should you have any questions concerning this non-compliance or monitoring requirements, please contact:  
Floyd Stephens  
Birmingham Water Works Board  
3600 First Avenue North  
Birmingham, AL 35283-0110  
Office: 205-244-4371
- In September of 2014, The Birmingham Water Works Board received notice of violation of the EPA's Risk Management Program (RMP) requirements. It was determined that Carson Filter Plant, Western Filter Plant and Putnam Filter Plant were deficient in the areas of documentation and record-keeping. Since the time of notification all deficiencies have been corrected.





# WATER QUALITY DATA

2014 Chemical Analysis					
Running Annual Average for System Wide Stage 2 Sites					
MCLG	MCL	RAA	Major Sources in Drinking Water		
	System-wide Running Annual Average (RAA): 80 µg/L	31.5	By-product of drinking water chlorination		
	System-wide Running Annual Average (RAA): 60 µg/L	25.2	By-product of drinking water chlorination		
TOC Step Removal for Filter Plants					
TOC Percent Removal	Carson	Putnam	Shades Mountain	Western	Major Sources in Drinking Water
Total Organic Carbon (TOC)	N/A	1.00	2.00	1.00	Naturally present in the environment

Parameters (mg/L)	MCLG	MCL	Carson			Putnam			Shades Mountain			Western			Major Sources in Drinking Water
			Highest	Range	Lowest	Highest	Range	Lowest	Highest	Range	Lowest	Highest	Range	Lowest	
Aluminum	0	0.05 - 0.2	0.022	0.016 - 0.022	ND	0.006	0.006	0.026	0.026	0.032	0.018 - 0.032	0.032	0.018 - 0.032	By-product of drinking water treatment	
Bromide	N/A	Monitored	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Calcium	0	Monitored	42.7	11.2 - 42.7	25.6	15.7 - 25.6	59.4	15.4 - 59.4	32.3	22.1 - 32.3	22.1 - 32.3	1.73	ND - 1.73		
Carbon Dioxide	0	Monitored	4.57	4.38 - 4.57	4.24	3.94 - 4.24	7.93	6.34 - 7.93	7.84	5.81 - 7.84	5.81 - 7.84	0.002	ND - 0.002		
Chloride	1	250	ND	ND	ND	ND	0.038	0.003 - 0.038	ND	ND	ND	ND	ND		
Copper	1	1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Foaming Agent	0.5	0.5	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Iron	0	0.3	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Langlier Index	N/A	Non-corrosive	-1.210	-0.700 to -1.210	-0.477	-0.070 to -0.477	-1.000	-0.680 to -1.000	-0.590	-0.224 to -0.590	-0.590	-0.224 to -0.590	9.14	4.33 - 9.14	
Magnesium	N/A	Monitored	6.29	2.81 - 6.29	5.96	2.99 - 5.96	8.23	3.30 - 8.23	8.14	0.002	0.002	0.002	0.002		
Manganese	0	0.05	ND	ND	ND	ND	0.004	ND - 0.004	ND	0.002	0.002	0.002	0.002		
pH	0	6.5 - 8.5	8.22	7.61 - 8.22	8.75	8.47 - 8.75	7.79	7.70 - 7.79	8.74	7.95 - 8.74	7.95 - 8.74	2.35	1.89 - 2.35		
Potassium	N/A	Monitored	2.46	1.84 - 2.46	2.23	1.84 - 2.23	1.93	1.15 - 1.93	2.35	1.89 - 2.35	1.89 - 2.35	0.002	ND - 0.002		
Silver	0	0.1	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Sodium	0	Monitored	8.80	1.81 - 8.80	4.40	1.72 - 4.40	8.39	1.98 - 8.39	7.89	3.57 - 7.89	3.57 - 7.89	246	191 - 246		
Specific Conductivity (µS)	0	Monitored	130	114 - 130	166	137 - 166	347	210 - 347	246	38.6 - 246	38.6 - 246	153	123 - 153		
Sulfate	0	250	24.9	22.1 - 24.9	39.3	29.9 - 39.3	66.7	34.7 - 66.7	59.6	36.6 - 59.6	36.6 - 59.6	72	50 - 72		
TDS	0	500	80	75 - 80	100	83 - 100	205	128 - 205	153	123 - 153	123 - 153	42	30 - 42		
Temperature (°F)	N/A	N/A	55	48 - 55	55	46 - 55	80	50 - 80	72	50 - 72	50 - 72	114	86 - 114		
Total Alkalinity	0	Monitored	26	20 - 26	30	24 - 30	90	46 - 90	42	30 - 42	30 - 42	0.019	ND - 0.019		
Total Hardness	0	Monitored	84	46 - 84	80	70 - 80	152	96 - 152	114	86 - 114	86 - 114	0.001	0.001		
Zinc	0	5	0.012	ND - 0.012	0.022	ND - 0.022	0.016	ND - 0.016	0.019	0.019	ND - 0.019	0.001	0.001		
Color, APHA	N/A	15 color units	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Odor	0	3 TON	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND		
Nickel	N/A	N/A	0.001	0.001	0.001	0.001	0.002	0.002	0.001	0.001	0.001	0.001	0.001	Discharge from nickel smelting/refining and steelworks industries	

## ADDITIONAL INFORMATION FOR YOUR HEALTH

All 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 at 1-800-426-4791.

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 it can pick up substances resulting from the presence of animals or from human activity.



Some people may be more vulnerable to contaminants in drinking water than the general population. People who are immunocompromised, such as cancer patients undergoing chemotherapy, organ transplant recipients, people with HIV/AIDS or other immune system disorders, some elderly people and infants can be particularly at risk for infection.

People at risk 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 at 1-800-426-4791. For further information, contact the Jefferson County Health Department at 205-933-9110.

# WATER QUALITY DATA

**Unregulated Organic Substances** - In compliance with ADEM regulations, the BWW must sample and monitor for the unregulated substances in the chart below.

2014 Chemical Analysis Unregulated Organic Substances Substances Not Detected										
Parameters (µg/L)	MCLG	MCL	Carson		Putnam		Shades Mountain		Western	
			Highest	Range	Highest	Range	Highest	Range	Highest	Range
1,1,1,2-Tetrachloroethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,1-Dichloropropene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichlorobenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,2,3-Trichloropropane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,2,4-Trimethylbenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,3,5-Trimethylbenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
1,3-Dichloropropene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
2,2-Dichloropropane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
3-Hydroxycarbofuran	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Aldicarb	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Aldicarb Sulfone	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Aldicarb Sulfoxide	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Aldrin	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Bromobenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Bromochloromethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Bromoform	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Bromomethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Butachlor	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Carbaryl	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Chloroethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Chloromethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND

Dibromoacetic Acid	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Dibromomethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Dicamba	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Dichlorodifluoromethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Dieldrin	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Fluorotrichloromethane	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Hexachlorobutadiene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Isopropylbenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Methiocarb	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Methyl Tertiary Butyl Ether	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Metolachlor	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Metribuzin	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Monobromoacetic Acid	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Monochloroacetic Acid	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
n-Butylbenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
n-Propylbenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
o-Chlorotoluene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
p-Chlorotoluene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
p-Isopropyltoluene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Propachlor	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
Propoxur	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
sec-Butylbenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND
tert-Butylbenzene	0	Monitored	ND	ND	ND	ND	ND	ND	ND	ND

Unregulated Organic Substances Detected										
Bromodichloromethane	0	Monitored	3.55	2.92 - 3.55	2.93	2.55 - 2.93	7.20	1.97 - 7.20	11.6	3.36 - 11.6
Chloroform	0	Monitored	13.4	11.0 - 13.4	9.93	9.02 - 9.93	21.9	3.75 - 21.9	33.0	17.5 - 33.0
Dibromochloromethane	0	Monitored	ND	ND	ND	ND	1.45	ND - 1.45	3.18	ND - 3.18
Dichloroacetic Acid	0	Monitored	10.6	8.51 - 10.6	9.32	4.18 - 9.32	11.4	4.20 - 11.4	15.1	7.11 - 15.1
Trichloroacetic Acid	0	Monitored	9.94	7.20 - 9.94	4.26	1.57 - 4.26	10.0	1.58 - 10.0	12.9	7.11 - 12.9

# WATER QUALITY DATA

## 2014 Chemical Analysis

Stage 2 Sites

Sites	Monochloroacetic Acid (µg/L)		Monobromoacetic Acid (µg/L)		Dichloroacetic Acid (µg/L)		Trichloroacetic Acid (µg/L)		Dibromoacetic Acid (µg/L)		Total Haloacetic Acids (HAA5) (µg/L)		LRAA Total Haloacetic Acids (HAA5) (µg/L)	
	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Average per Site
Carson	ND	ND	10.6	8.51 - 10.6	9.94	7.20 - 9.94	ND	ND	20.5	15.9 - 20.5	18.2			
Parade Gas Station Hwy 75	ND	ND	21.6	8.36 - 21.6	24.5	8.32 - 24.5	ND	ND	46.1	16.7 - 46.1	26.0			
Putnam	ND	ND	9.32	4.18 - 9.32	4.26	1.95 - 4.26	ND	ND	13.6	5.75 - 13.6	10.0			
Birmingham Fire Station #12	ND	ND	8.03	5.94 - 8.03	4.49	2.57 - 4.49	ND	ND	12.5	8.92 - 12.5	10.5			
Birmingham Fire Station #30	ND	ND	26.0	11.2 - 26.0	15.5	12.1 - 15.5	ND	ND	41.5	23.3 - 41.5	29.2			
New Temple Baptist Church	ND	ND	28.4	14.4 - 28.4	18.6	11.4 - 18.6	ND	ND	45.0	26.5 - 45.0	35.1			
Shades Mountain	ND	ND	11.4	4.20 - 11.4	10.0	1.58 - 10.0	ND	ND	21.4	5.78 - 21.4	14.9			
Birmingham Fire Station #32	ND	ND	11.4	7.06 - 11.4	12.4	3.55 - 12.4	ND	ND	21.1	10.7 - 21.1	16.0			
Highland Lakes Bristo Lane	ND	ND	32.8	7.69 - 32.8	10.6	5.57 - 10.6	ND	ND	45.3	13.3 - 45.3	27.1			
Hoover Fire Station #2	ND	ND	32.7	6.75 - 32.7	12.5	3.57 - 12.5	ND	ND	45.2	10.3 - 45.2	23.2			
Moody Fire Station	ND	ND	19.1	9.74 - 19.1	19.7	7.18 - 19.7	ND	ND	38.8	16.9 - 38.8	29.2			
Shades Crest Grocery	ND	ND	32.9	6.39 - 32.9	13.9	4.77 - 13.9	ND	ND	45.5	11.2 - 45.5	26.8			
Western	ND	ND	15.1	7.11 - 15.1	12.9	7.11 - 12.9	ND	ND	27.6	14.2 - 27.6	21.3			
Birmingham Fire Station #18	ND	ND	17.0	6.59 - 17.0	11.8	2.87 - 11.8	ND	ND	28.8	9.46 - 28.8	18.9			
Pleasant Grove Post Office	ND	ND	25.8	6.87 - 25.8	15.1	5.65 - 15.1	ND	ND	40.9	12.5 - 40.9	24.8			
Shannon Fire Station	ND	ND	28.1	6.90 - 28.1	16.2	3.63 - 16.2	ND	ND	44.2	10.5 - 44.2	25.7			
Sites	Chloroform (µg/L)		Bromochloromethane (µg/L)		Dibromochloromethane (µg/L)		Bromoform (µg/L)		Total Trihalomethanes (TTHM) (µg/L)		LRAA Total Trihalomethanes (TTHM) (µg/L)			
	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Average per Site		
Carson	13.4	11.0 - 13.4	3.55	2.92 - 3.55	ND	ND	16.9	13.9 - 16.9	15.3					
Parade Gas Station Hwy 75	32.8	12.6 - 32.8	5.56	3.29 - 5.56	ND	ND	38.4	15.8 - 38.4	23.8					
Putnam	9.93	9.02 - 9.93	2.93	2.55 - 2.93	ND	ND	12.6	11.6 - 12.6	12.1					
Birmingham Fire Station #12	14.8	10.1 - 14.8	3.31	2.73 - 3.31	ND	ND	18.1	12.9 - 18.1	16.8					
Birmingham Fire Station #30	24.9	17.5 - 24.9	5.04	4.00 - 5.04	ND	ND	29.9	21.5 - 29.9	25.9					
New Temple Baptist Church	52.3	29.6 - 52.3	7.62	5.09 - 7.62	1.04	ND - 1.04	ND	61.0	34.7 - 61.0	47.1				
Shades Mountain	21.9	3.75 - 21.9	7.20	1.97 - 7.20	1.45	ND - 1.45	ND	30.6	5.72 - 30.6	18.3				
Birmingham Fire Station #32	24.3	10.9 - 24.3	7.23	4.16 - 7.23	1.61	ND - 1.61	ND	33.1	16.2 - 33.1	22.2				
Highland Lakes Bristo Lane	43.1	10.6 - 43.1	10.2	4.36 - 10.2	2.10	1.17 - 2.10	ND	55.4	16.3 - 55.4	38.9				
Hoover Fire Station #2	29.0	4.36 - 29.0	8.12	2.36 - 8.12	1.76	ND - 1.76	ND	38.8	6.72 - 38.8	23.6				
Moody Fire Station	81.8	16.4 - 81.8	8.48	4.57 - 8.48	1.42	ND - 1.42	ND	91.4	22.8 - 91.4	45.4				
Shades Crest Grocery	46.0	7.10 - 46.0	10.9	3.27 - 10.9	2.33	1.11 - 2.33	ND	59.2	11.5 - 59.2	36.0				
Western	33.0	17.5 - 33.0	11.6	3.36 - 11.6	3.18	ND - 3.18	ND	47.8	20.9 - 47.8	33.7				
Birmingham Fire Station #18	36.2	16.6 - 36.2	12.0	3.44 - 12.0	3.21	ND - 3.21	ND	51.3	22.0 - 51.3	37.8				
Pleasant Grove Post Office	42.4	7.46 - 42.4	12.8	2.85 - 12.8	3.05	ND - 3.05	ND	58.2	10.3 - 58.2	31.1				
Shannon Fire Station	41.1	7.78 - 41.1	12.5	3.74 - 12.5	2.86	1.14 - 2.86	ND	56.5	12.8 - 56.5	33.5				

## Consecutive System Meters

Meters	Monochloroacetic Acid (µg/L)		Monobromoacetic Acid (µg/L)		Dichloroacetic Acid (µg/L)		Trichloroacetic Acid (µg/L)		Dibromoacetic Acid (µg/L)		Total Haloacetic Acids (HAA5) (µg/L)		LRAA Total Haloacetic Acids (HAA5) (µg/L)	
	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Average per Site
West Jefferson - 4251 Flat Top Road, 35073	ND	ND	24.2	10.1 - 24.2	16.9	10.1 - 16.9	ND	ND	37.0	20.2 - 37.0	28.8			
Brookside #1 - 1298 Brookside Coalburg Road, 35181	ND	ND	19.8	10.3 - 19.8	12.8	6.36 - 12.8	ND	ND	29.3	16.7 - 29.3	24.0			
Brookside #2 - 2299 Robert Road, 35214	ND	ND	22.2	10.0 - 22.2	12.5	8.88 - 12.5	ND	ND	33.6	18.9 - 33.6	26.3			
Pine Bluff #1 - 22495 State Highway 79, 35172	ND	ND	13.9	10.5 - 13.9	14.0	10.0 - 14.0	ND	ND	27.9	20.8 - 27.9	24.1			
Pine Bluff #2 - 9 Good News Road, 35172	ND	ND	18.1	10.9 - 18.1	13.8	10.1 - 13.8	ND	ND	31.9	21.0 - 31.9	25.2			
Muliga #1 - 316 Templeton Road, 35218	ND	ND	23.2	6.68 - 23.2	12.2	5.83 - 12.2	ND	ND	35.4	12.5 - 35.4	24.9			
Muliga #2 - 601 Pleasant Grove Road, 35127	ND	ND	16.4	7.62 - 16.4	16.1	8.34 - 16.1	ND	ND	30.0	17.4 - 30.0	24.7			
Graysville #1 - 2395 Forestdale Blvd, 35214	ND	ND	19.3	6.24 - 19.3	13.1	5.97 - 13.1	ND	ND	29.2	12.2 - 29.2	22.9			
Graysville #2 - 4251 Flattop Road, 35073	ND	ND	23.8	7.58 - 23.8	14.7	7.95 - 14.7	ND	ND	37.9	15.5 - 37.9	27.5			
Remlap - 942 Ridgewood Drive, 35133	ND	ND	18.6	10.5 - 18.6	14.2	10.3 - 14.2	ND	ND	31.5	20.8 - 31.5	27.5			
Meters	Chloroform (µg/L)		Bromochloromethane (µg/L)		Dibromochloromethane (µg/L)		Bromoform (µg/L)		Total Trihalomethanes (TTHM) (µg/L)		LRAA Total Trihalomethanes (TTHM) (µg/L)			
	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Range	Highest	Average per Site		
West Jefferson - 4251 Flat Top Road, 35073	41.2	18.8 - 41.2	11.2	3.11 - 11.2	2.67	ND - 2.67	ND	ND	55.1	21.9 - 55.1	35.9			
Brookside #1 - 1298 Brookside Coalburg Road, 35181	28.2	22.3 - 28.2	5.45	4.11 - 5.45	1.05	ND - 1.05	ND	ND	33.5	26.4 - 33.5	29.7			
Brookside #2 - 2299 Robert Road, 35214	35.7	16.7 - 35.7	9.69	3.00 - 9.69	2.60	ND - 2.60	ND	ND	45.1	19.7 - 45.1	35.3			
Pine Bluff #1 - 22495 State Highway 79, 35172	20.2	14.4 - 20.2	4.07	2.95 - 4.07	ND	ND	ND	ND	24.2	17.5 - 24.2	20.5			
Pine Bluff #2 - 9 Good News Road, 35172	18.7	14.6 - 18.7	4.14	3.22 - 4.14	ND	ND	ND	ND	22.8	17.8 - 22.8	20.7			
Muliga #1 - 316 Templeton Road, 35218	31.6	11.9 - 31.6	10.1	2.80 - 10.1	2.74	ND - 2.74	ND	ND	44.4	14.7 - 44.4	30.6			
Muliga #2 - 601 Pleasant Grove Road, 35127	43.8	15.3 - 43.8	11.0	4.10 - 11.0	2.48	1.02 - 2.48	ND	ND	57.2	20.4 - 57.2	39.1			
Graysville #1 - 2395 Forestdale Blvd, 35214	27.9	11.5 - 27.9	9.82	3.03 - 9.82	2.68	ND - 2.68	ND	ND	40.4	14.5 - 40.4	29.6			
Graysville #2 - 4251 Flattop Road, 35073	43.6	14.5 - 43.6	10.6	3.42 - 10.6	2.64	ND - 2.64	ND	ND	56.8	18.0 - 56.8	38.0			
Remlap - 942 Ridgewood Drive, 35133	27.3	15.6 - 27.3	5.00	3.65 - 5.00	ND	ND	ND	ND	32.3	19.3 - 32.3	25.9			



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