The Water Treatment Process

Screens (2) to remove large debris. It is then pumped into the plant where alum is added to precipitate iron, manganese, and other metals (3). After an additional sedimentation process, carbon dioxide is added (6) to lower the pH (4).

Water then flows through large dual-media rapid sand filters made up of layers of gravel and sand to remove suspended particles (5). The softening process (5) involves the addition of sodium carbonate (soda ash) or caustic to remove hardness (7). After an additional sedimentation process, chlorine is added (8) to ensure that all treatment steps are followed by disinfection. The addition of chloramine at the end of the process (9) before water enters large underground clearwells (10) to be held until needed by the community (11).

Please note: When ground water is used (as in the case of the Parsons Avenue Water Plant), neither screening (2) nor initial sedimentation (3, 4) is needed.

Sewer and Water Advisory Board

In 1984, the City of Columbus formed the Columbus Sewer and Water Advisory Board (SWAB) to oversee the operations and rates of both the Sewer Department and the Division of Water. The board, comprised of city officials and city residents who represent different constituencies — such as water customers and the business community — meets quarterly to advise the Divisions on business decisions and best practices. Chaired by Ohio State University’s Wallace Giffen, the board forwards their recommendation to Columbus City Council, who then deliberates to officially set rates or change fundamental policy.

SWAB meetings are open to the public; call (614) 645-1066 for a schedule of meeting times and dates.

Customer Service

• Taste/Odor/Colored Water Concerns
• Regulatory Inquiries
• Process Bill Payments
• Open/Close Accounts
• Report Hydrant Damage or Leaks
• Water Emergencies (evenings, weekends)

Visit www.columbus.gov/drinkingwater/ or www.columbus.gov/WaterQualityConcerns/ for other common water quality concerns & related information.

Consumer Confidence Reports requires that we produce an annual listing of contaminants and other information that we detected or did not detect in all of our finished water samples. The Drinking Water Source Assessment Report, which can be found at www.columbus.gov/WaterAssessment, provides a synopsis of the results. Below is a synopsis of the results.

Less than 1% of the world's fresh water supplies are available for human consumption. Water is the original sports drink - it contains no fat, calories, added sugars or cholesterol. 60% of an adult's body is made up of water; 78% of a newborn's body is water.

How to Contact Us

Consumer Confidence Reports

Your 2013 Water Report

The goal of the Division of Water is to ensure that any contaminants in your drinking water are restricted below a level at which there is known health risk. This report shows the types and amounts of key elements in your water supply, their likely sources and the maximum contaminant level (MCL) that the EPA considers safe. The water delivered to your home meets All of the requirements of the Safe Drinking Water Act (SDWA). We use a complex multi-barrier treatment process to ensure safe drinking water is delivered to our customers. If for any reason the standards are not met, the public will be notified.

Taste & Odor

The Water Distribution System was designed to disperse the taste and odor of chlorine throughout the city. Chlorine is added to ensure that all treatment steps are followed by disinfection. Chlorine is used to kill any harmful microorganisms present in the water when it is first brought into the City. The residual disinfectant is used to prevent the growth of bacteria as the water travels through the water mains.
The Water Treatment Process

Water flows to the treatment plant from the reservoir or stream through rotating floc. The water is pumped from the bottom of the pools and stored in holding lagoons to dry. This process is called coagulation. After rapid mixing, the water remains in the settling basin. This process takes an additional 2-4 hours. For each pound of water treated, 185 mg of aluminum sulfate are needed. This process is called coagulation. The chlorine added to disinfect the water, fluoride to protect teeth and a corrosion inhibitor take place at the end of the process before water enters large underground storage tanks.

Addition of chlorine to disinfect the water, fluoride to protect teeth and a corrosion inhibitor take place at the end of the process before water enters large underground storage tanks.

Your 2013 Water Report

The goal of the Division of Water is to ensure that any contaminants in your drinking water are restricted below a level at which there is known health risk. This report shows the types and amounts of key elements in your water supply, their likely sources and the maximum contaminant level (MCL) that the EPA considers safe. The water delivered to your home meets the multi-barrier treatment process to assure safe drinking water is delivered to our customers. If for any reason the standards are not met, the public will be notified.

Did You Know...

Water is the original sports-drink: it contains no fat, calories, added sugars or Conservatives. 64% of your body is made up of water. 78% of a newborn’s body is water. We need 24/7 to consume an adequate supply of high-quality drinking water. We operate and maintain 1 water treatment plants, 26 pump stations, 37 water storage tanks, 517 miles of water lines and nearly 21,000 hydrants. We deliver over 50 billion gallons of water a year to 1.1 million people. In an average day, 137.6 million gallons of water is pumped throughout the city with an average usage of 128 gallons per person per day. A gallon of tap water costs $0.03346.

Water for Living

How to Contact Us

Division of Water
City of Columbus
Columbus, OH 43215
Water Quality Assurance Laboratory
(614) 645-7931
• Water Quality Monitoring Questions
• Regulatory Inquiries
• Taste/Oral/Chlorine Water Concerns
Customer Service
(614) 645-7916
• Customer Billing Inquiries
• Open/Closed Accounts
• Schedule Service Calls
• Process Bill Payments
Distribution/Maintenance
• Water Emergencies (averaging twice per week)
• Report Waterline Breaks
• Report Hydrant Damage or Leaks

Michael B. Coleman
Mayor, City of Columbus
Greg J. Davies
Director, Department of Public Utilities
Richard C. Westerfield, P.E., Ph.D.
Administrator, Division of Water

For illustration purposes only

2013 Drinking Water Consumer Confidence Report (CCR)
City of Columbus, OH

Visit www.columbus.gov/drinkingwater/ or www.columbus.gov/WaterQualityConcerns/ for other common water quality concerns & related information.
The Water Treatment Process

- Screens (2) to remove large debris. It is then pumped into the plant where alum is added for water hardness.
- Floc is pumped from the bottom of the pools and stored in holding lagoons to dry.
- Sedimentation of floc occurs (2-4 hours). The water treatment residual (settled solids) is responsible for water hardness. This process takes an additional 2-4 hours. For each pound of chemical used in the treatment process, two pounds are removed.
- After an additional sedimentation process, carbon dioxide is added (6) to lower the pH level to approximately 7.8. Water is held in a stabilizing basin (7) for another 2-4 hours.
- Inhibitor take place at the end of the process (9) before water enters large underground clearwells (10) to be held until needed by the community (11).

Please note: When ground water is used (as in the case of the Parsons Avenue Water Plant), neither screening (2) nor initial sedimentation (3, 4) is needed.
The Water Treatment Process

Water flows (1) to the treatment plant from the reservoir or stream through rotating ed (3) to cause coagulation. After rapid mixing, the water remains in the settling basin. The softening process (5) involves the addition of sodium carbonate (soda ash) or causes for water hardness. This process takes an additional 2-4 hours. For each pound of calcium carbonate added, 0.4 pounds of sodium carbonate is required. After an additional sedimentation process, carbon dioxide is added (6) to lower the pH level to approximately 7.8. Water is held in a stabilizing basin (7) for another 2-4 hours.

Please note: When ground water is used (as in the case of the Parsons Avenue Water Treatment Plant), the water flows through a dedicated system that is separate from the surface water system.

Source Water Assessment Information

A high-quality source water supply allows the Division of Water to provide consumers with quality water at a reasonable cost. Protecting our raw water sources is an essential part of our mission to maintain regulatory compliance and monitor our water supply. The Division of Water has completed a Source Water Assessment process. Below is a synopsis of the results.

The City of Columbus’ water system uses surface water from the Scioto River and Big Walnut Creek, as well as ground water pumped from sand and gravel deposits of the Scioto River Valley. All three sources of water have a relatively high susceptibility to contamination from spills or releases of chemicals. The ground water pumped at the Parsons Avenue plant is more susceptible (compared to other ground water systems) because there is no significant clay overlying and protecting the aquifer deposits. The Scioto River and Big Walnut Creek are even more susceptible because they are more accessible and less protected from spills.

The drinking water source protection areas for the City of Columbus’ three water sources contain numerous potential contamination sources, especially the protection area for the Dublin Road Water Treatment Plant (extending along the Scioto River). These include industries, storm water runoff from developing areas, and a heavily traveled transportation network running alongside and over the water bodies. Run-off from agricultural fields is a concern in both the Scioto River and Big Walnut Creek waterbodies.

Columbus treats the water to meet drinking water quality standards, but no single treatment process can address all potential contaminants. The City has been proactive in pursuing measures to further protect its source waters. These include land stewardship programs and incentives-driven programs to reduce runoff and run-off of pesticides and fertilizers into the Scioto River and Big Walnut Creek and their reservoirs. More detailed information is provided in the City of Columbus Drinking Water Source Assessment Report, which can be viewed by calling the Waterworks section at (614) 645-7788. Visit www.columbus.gov/waterhealth for more about watershed management and the land stewardship program.

Common Water Quality Concerns

Chlorinous Taste & Odor

Occasionally Columbus water has an earthy, musty or fishy taste and odor. These seasonal phenomena can occur when the water is passed over varied algal blooms in the reservoirs or rivers. It is important to note this taste and odor is not harmful to your health, and it is not caused by a lack of chlorination. When water appears to have a milky white, gray, or carbonated appearance, it is caused by a lack of free chlorine in the water. This is typically caused by bacterial activity in the distribution system. The City of Columbus is committed to maintaining adequate levels of chlorine in the distribution system to prevent the growth of harmful bacteria.

Chlorine Taste & Odor

The City of Columbus has a long and successful history of water treatment involving the chemical chlorine. The Water Quality Assurance Laboratory and the city water plants check the chlorine content throughout the city daily to ensure the highest quality control. Without proper initial disinfection and continuous residual protection in the distribution system, the city’s entire water distribution system would become vulnerable to biological organisms.

If the taste or odor is found to be objectionable, it should be noted that you could eliminate the taste of chlorine in your water by setting an open pitcher in your refrigerator overnight.

Chlorine Taste & Odor

When water appears to have a milky white, gray, or carbonated appearance, it is caused by a variety of reasons including: water main breaks, fire-fighting operations, water main flushing or broken hydrants, construction work or damage, system depressurization, and corroding iron pipes. Normally rusty water events dissipate in 4-6 hours but could last longer depending on water usage in the area. If the event lasts more than 24 hours please call distribution maintenance at (614) 645-7788.

During such an event, it is of little to no value for you to run your water until it turns clear; this is wasteful and costly to you as a consumer. During such events, use of hot water should be kept to a minimum, as it will draw cold rusty water into your hot water tank. If your hot water tank does not have hot in it, use caustin and phosphate to prevent the manufacture’s directions for shutting down, draining, and re-starting your hot water tank.

Clothing washed in rusty water can become stained. Should this occur, it is important to not dry the clothing. Instead, leave the wet clothing in the washer and apply an iron removal product as soon as possible to prevent the iron stain from setting. Please follow the manufacturer’s instructions.

When water appears to have a milky white, gray, or carbonated appearance, a simple test may suffice to determine its origin. Fill a clear glass with tap water and observe it over a minute or so. If the glass clears from bottom to top, it is dissolved air escaping into the atmosphere. There is no health risk associated with this situation.

Did You Know...

For illustration purposes only...
The Water Treatment Process

Water flows (1) to the treatment plant from the reservoir or stream through rotating screens (2) to remove large debris. It is then pumped into the plant where alum is added. The water is then directed into a basin (3) where iron, sand and anthracite coal (4) are added. Flocculation and sedimentation takes place in the basins. After settling for several hours, the water is then pumped (5) through a sand filter (6). The filtered water is then disinfected (7) by feeding chlorine gas into the water. The water is held in a stabilization basin (8) for another 2-4 hours. Water is then held in a clearwell (9) before entering the large underground clearwells (10) to be held until needed by the community (11).

Please note: When ground water is used (as in the case of the Parsons Avenue Water Treatment Plant), the process is similar except that water flows from the wells rather than the reservoir or stream.
### Primary Drinking Water Standards

<table>
<thead>
<tr>
<th>Substances at detected levels</th>
<th>What’s NOT in Your Water</th>
<th>What’s the goal?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Trihalomethanes (ppb)</td>
<td>2013 80 No goal set</td>
<td>59.3 17.3 - 83.5</td>
</tr>
<tr>
<td>Dibromochloromethane (ppb)</td>
<td>No set level</td>
<td>60 0.5 N/A</td>
</tr>
<tr>
<td>Total Haloacetic Acids (ppb)</td>
<td>2013 60 No goal set</td>
<td>42.4 28.9 - 55.6</td>
</tr>
<tr>
<td>Alachlor (ppb)</td>
<td>2013 2 0 ND</td>
<td>ND ND ND ND</td>
</tr>
<tr>
<td>Atrazine (ppb)</td>
<td>2013 3 3 &lt;0.10 - 0.93</td>
<td>0.26 &lt;0.10 - 0.98</td>
</tr>
<tr>
<td>pH (units)</td>
<td>2013 7.0 - 10.5 (SMCL) No goal set</td>
<td>7.8 7.7 - 7.9</td>
</tr>
<tr>
<td>Turbidity (NTU)</td>
<td>TT (&lt;1 NTU) No goal set</td>
<td>100% 100% - 100%</td>
</tr>
<tr>
<td>Copper (ppm)</td>
<td>2011 1.3 0.069 0.003 - 0.215</td>
<td>0 out of 50</td>
</tr>
<tr>
<td>Zinc (ppm)</td>
<td>2013 0 0.001 0.001 - 0.013</td>
<td>0.001 0.001 - 0.013</td>
</tr>
<tr>
<td>Silica (ppm)</td>
<td>2013 0.38 0.04 - 0.38</td>
<td>N/A N/A</td>
</tr>
<tr>
<td>Sodium (ppm)</td>
<td>2013 130 0.01 0.01 - 1.00</td>
<td>0.01 0.01 - 1.00</td>
</tr>
</tbody>
</table>

### Definitions and Terms

- **Treatment Technique (TT)**
- **Grains per Gallon (gpg)**
- **Parts per Million (ppm)** or **NTU**
- **MCL**
- **Action Level (AL)**
- **NT2**
- **N2**
- **GROVE CITY**
- **Griggs Water Plant**
- **Dublin Road**
- **Parsons Avenue Water Plant**
- **Columbus Road**
- **Coping Avenue**
- **Water Quality Assurance**
- **Treatment Process**

### The City of Columbus has a conditioned, unlimited license to operate our public water system.

### Water Quality Assurance

#### Health Concerns

Some people may be more vulnerable to contaminants in drinking water than the general population, including:

- Infants (in diapers)
- Small children
- Pregnancy
- Older adults
- People with immune system conditions
- People who are elderly

### Water Quality Assurance Laboratory (WQAL)

The WQAL performs water quality monitoring and treatment research to ensure that Columbus’ drinking water is safe to drink. The WQAL also conducts water testing to determine if drinking water meets or exceeds any necessary treatment requirements.

### Water Quality Assurance

Columbus' drinking water meets or is better than all federally mandated Safe Drinking Water Act (SDWA) standards. The WQAL also provides water quality information to the water treatment plant operators, water supply complaints and inquiries, and required actions to meet water quality. In 2013, the WQAL’s EPA licensed and certified laboratory staff completed over 40,000 analyses relating to 29 different organic, inorganic, and microbiological water quality parameters.

#### To maintain compliance with current SDWA regulations, WQAL activities in 2013 were again directed at developing information regarding new and upcoming rules. These include the Unregulated Contaminant Monitoring Rule (UCMR). The UCMR is one of the Drinking Water Contaminants (DWC) that now requires utilities to lessen the risk of infection by Cryptosporidium. The lab has been closely involved in planning the improvement of watershed and water distribution system surveillance and detecting the presence of chemical contaminants. Water quality data now available from the Safe Drinking Water Hotline at 1(800) 426-4791.

#### What’s NOT in Your Water

Reports on TV and in the press often cause concerns about the health risks associated with the presence of various chemicals, minerals, or other contaminants in your food or water. The Columbus Division of Water performs tests of thousands of chemicals each year to ensure drinking water quality. Many substances for which the Division tests never appear in this report because they are not found in the drinking water. The Division follows various volatile organic compounds, pesticides, atrazine, stilbene, BTX (benzene, toluene, xylenes), as well as an array of other substances. The source of drinking water (both tap water and bottled water) includes rivers, lakes, streams, ponds, reservoirs, springs, and wells. Water travels over the surface of the land or through the ground. It dissolves naturally-occurring minerals and, in some cases, radioactive, chemical, and biological contaminants, which can be harmful to animals or from humans.

### Total Organic Carbon

#### What’s NOT in Your Water

The value reported under “Level Found” for Total Organic Carbon (TOC) is the longest running annual average ratio between the percentage of TOC actually removed from the water and the percentage required to be removed. A value of greater than 0.9 indicates that the water system is in compliance with federal regulations, and a value of less than 0.9 indicates a violation of one of the TOC removal requirements.

### Total Organic Carbon

The value reported under “Level Found” for Total Organic Carbon (TOC) is the longest running annual average ratio between the percentage of TOC actually removed from the water and the percentage required to be removed. A value of greater than 0.9 indicates that the water system is in compliance with federal regulations, and a value of less than 0.9 indicates a violation of one of the TOC removal requirements.

### Newborns and Nitrate

Nitrate in drinking water at levels above 10 ppm is a health risk for infants less than 6 months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time following fertilizer application. Local television, radio and print media will be notified within 24 hours if the level of nitrate rises above 10 ppm. The health risk is not only to the nursing mother. Notify your retailer or contact the city for decreasing levels of nitrate by calling (614) 645-4791.

According to the Consumer Product Safety Commission, nitrate is a possible human carcinogen. You can also call (614) 645-8276 for your free copy of “What You Need to Know About Lead in Drinking Water.” This information can also be found online at www.epa.gov/safewater/lead or at www.epa.gov/safewater/lead.

### What’s NOT in Your Water

If present, elevated levels of lead can cause serious health problems, particularly for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with water systems or from service lines. Homeowners, landlords, and others responsible for providing high quality drinking water, but cannot control the level of lead in water that has already left the water pipe. The City of Columbus is responsible for providing high quality drinking water, but cannot control the level of lead in water that has already left the water pipe. If you are concerned about lead in your water, you may wish to have your water tested. A single chemical test of your tap water will not show if lead is present in the water. The simplest way to find out is to have the water tested by a laboratory.

### Water Quality Assurance

The City of Columbus’ Water Quality Assurance Laboratory (WQAL) is a large modern water lab with a long history of distinguished public service starting under the leadership of former Mayor of Columbus, Warren G. Harding. The lab continues to maintain that tradition of excellence and technical innovation in the community. The WQAL tests for over 150 contaminants in tap water. These contaminants can be naturally occurring or the result of urban, industrial, and agricultural activities. The lab has been closely involved in planning the improvement of watershed and water distribution system surveillance and detecting the presence of chemical contaminants. Water quality data now available from the Safe Drinking Water Hotline at 1(800) 426-4791.

### What’s NOT in Your Water

The value reported under “Level Found” for Total Organic Carbon (TOC) is the lowest running annual average ratio between the percentage of TOC actually removed from the water and the percentage required to be removed. A value of greater than 0.9 indicates that the water system is in compliance with federal regulations, and a value of less than 0.9 indicates a violation of one of the TOC removal requirements.

### Total Organic Carbon

The value reported under “Level Found” for Total Organic Carbon (TOC) is the lowest running annual average ratio between the percentage of TOC actually removed from the water and the percentage required to be removed. A value of greater than 0.9 indicates that the water system is in compliance with federal regulations, and a value of less than 0.9 indicates a violation of one of the TOC removal requirements.
The City of Columbus has a current, unconditioned license to operate our public water system.

What’s NOT in Your Water

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. Each home, school and business in the greater Columbus area receives water from one of the following three water plants:

- Dublin Road Water Plant
- Hap Cremean Water Plant
- Parsons Avenue Water Plant

In the 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 1-800-426-4701.

The Ohio Environmental Protection Agency has no set level that is considered harmful. 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 1-800-426-4701.

If present, elevated levels of lead can cause serious health problems, especially for young children. Lead in water primarily comes from lead service lines and components associated with services to individual homes. Lead may also enter drinking water as a result of腐蚀 of lead-based solder and brass plumbing components in older homes, as well as from lead-based pipes and service lines used in the construction of new buildings. In general, service lines deliver pipe-bound lead levels to the household under conditions that favor lead movement. For example, elevated levels of lead can cause serious health problems, especially for young children. Lead in water primarily comes from lead service lines and components associated with services to individual homes. Lead may also enter drinking water as a result of corrosion of lead-based solder and brass plumbing components in older homes, as well as from lead-based pipes and service lines used in the construction of new buildings. In general, service lines deliver pipe-bound lead levels to the household under conditions that favor lead movement.

Water Quality Assurance

The City of Columbus Water Quality Assurance Laboratory (WQAL) is a large modern water lab with a long history of distinguished public service starting in 1914 with the appointment of one of the last members of the former Charles Hoover. The lab continues to maintain that tradition of excellence and technical innovation in the important task of making sure that the drinking water that comes into your home is safe and clean.

The WQAL performs water quality monitoring and treatment research to ensure that Columbus’ drinking water is of the highest quality. The lab is dedicated to providing WATER, a life-sustaining resource, for the well-being and economic vitality of the community.

This is our mission.

Newborns and Nitrate

Nitrate in drinking water at levels above 10 ppm is a health risk for infants, less than 6 months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time following the application of fertilizer or animal manure. Local television, radio and print media will be notified when 4% of the level of nitrate rises above 10 ppm. The City of Columbus will work to notify you if you are caring for an infant you should seek advice from your health care provider. Additional information can also be obtained at www.epa.state.oh.us/ddagw and look under Common Water Quality Concerns for the Elevated Nitrate Levels Feature.

None of the water supplied by the Columbus water plants exceeded the limits set by the EPA in 2013.

Health Concerns

The Ohio Environmental Protection Agency has no set level that is considered harmful. 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 1-800-426-4701.

Cyanotoxins ("Cyanotoxins"); for example, is a microscopic organism that, when ingested, can result in diarrhea, fever, and other gastrointestinal symptoms. Cyanotoxins can come from animal waste in the watershed and may be found in our source water. Cyanotoxins are elicit ed by using a multi-barrier water treatment process including coagulation, sedimentation, softening, filtration and disinfection. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cyanotoxins and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4701.

Cyanotoxins are regularly tested for organisms that could be harmful to people – including Cryptosporidium. Cryptosporidium was detected 5 times out of 50 in the Scioto River and 10 times out of 50 in the Hoover Water Plant. Cryptosporidium was detected 5 times out of 50 in both the DRWP tap water and in the HCWP tap water. It should be noted, the presence in tap water samples and current methods do not enable us to determine if the organisms are dead or if they are capable of causing disease.

Water Quality Assurance

The City of Columbus Water Quality Assurance Laboratory (WQAL) is a large modern water lab with a long history of distinguished public service starting in 1914 with the appointment of one of the last members of the former Charles Hoover. The lab continues to maintain that tradition of excellence and technical innovation in the important task of making sure that the drinking water that comes into your home is safe and clean.

The WQAL performs water quality monitoring and treatment research to ensure that Columbus’ drinking water is of the highest quality. The lab is dedicated to providing WATER, a life-sustaining resource, for the well-being and economic vitality of the community.

This is our mission.

These operators, the Water Quality Assurance Laboratory staff, and all of the Division of Water employees are dedicated to providing high-quality drinking resource, for the well-being and economic vitality of the community.

This is our mission.