



ANNUAL

WATER QUALITY REPORT

Water testing performed in 2010



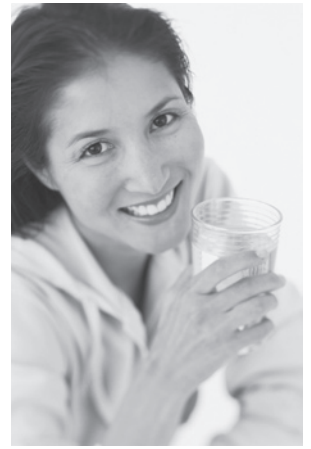
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This report was prepared by:
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300 E. Staunton Road
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Quality First

Once again we are proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2010. As in years past, we are committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all of our water users. Thank you for allowing us to continue providing you and your family with quality drinking water.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions or concerns, we are always available to assist you.



For more information about this report, or for any questions relating to your drinking water, please contact Tim Ray, Water Plant Superintendent: phone (937) 339-4826, email tim.ray@troyohio.gov, or FAX 937-339-0838.

Community Participation

You are invited to express issues concerning water quality to the Troy City Council, which meets the 1st and 3rd Monday of each month beginning at 7 p.m. in the 2nd floor Council Chambers of City Hall, 100 South Market Street, Troy, OH. Notification of any special Council Committee meeting, including the Utilities Committee, is posted on the City of Troy website: www.troyohio.gov as well as at the City Hall.

Where Does My Water Come From?

The City of Troy water customers are fortunate in that the City of Troy enjoys an abundant water supply from the buried valley sand and gravel aquifers associated with the Great Miami River. The City currently utilizes ten (10) production wells to draw water from the aquifer for treatment at the Water Treatment Plant (WTP) at 300 E. Staunton Rd. These wells range from 16 to 38 inches in diameter, and have screened intervals in the aquifer between 44 feet and 132 feet in depth. Well water is pumped to the WTP, where it is softened, clarified, stabilized, disinfected and filtered, prior to being pumped to our water distribution system which serves our customers. This aquifer is constantly being replenished from various underground sources and through riverbed filtration. In 2010, our treatment facilities provided approximately 1.437 billion gallons of clean, clear drinking water to our customers residing in Troy and surrounding communities.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our well fields and sent to our water plant on Staunton Road. Troy's ground water has a hardness ranging from 330 ppm to 420 ppm, expressed as CaCO₃. Our lime/soda softening plant then utilizes gravity flow to move the water through the entire treatment process, eliminating the need for costly electrical power for the pumping of water or chemicals. Upon entering the treatment plant, the water proceeds through a primary upflow clarifier basin train, where lime (calcium oxide) is added to remove hardness, iron and manganese. The addition of this lime raises the pH to a minimum of 10.6 and causes small particles (containing the components of hardness) to adhere to one another (called "floc") making them heavy enough to settle. Treated water flows to a secondary upflow clarifier for further floc settling. Settled floc is removed automatically and stored in lagoons, to be eventually applied to local farm fields as a soil amendment. Settled water is then restabilized (pH reduced to 8.7-8.9) by the addition of carbon dioxide, and chlorine is added as a disinfectant. Finally, the water is filtered through layers of fine anthracite coal and silicate sand. As smaller, suspended particles are removed, turbidity disappears and clear, clean water emerges.

Chlorine is added prior to filtration as a precaution against any bacteria that may be present. We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste. Finally, the softened water (with a hardness of 120 ppm to 130 ppm, expressed as CaCO₃) is pumped to sanitized, underground reservoirs, distribution mains, elevated water storage towers and into your home or business.

Substances That Could Be in Water

To ensure that tap water is safe to drink, U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration 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 these contaminants does not necessarily indicate that the water poses a health risk.

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 can acquire naturally occurring minerals, in some cases, radioactive material; and substances resulting from the presence of animals or from human activity. Substances that may be present in source water include: Microbial Contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife; Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 agriculture, urban stormwater runoff, and residential uses; Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and may also come from gas stations, urban stormwater runoff, and septic systems; Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Source Water Protection

The City of Troy developed and implemented a groundwater monitoring protection program in 1984. There are 14 monitoring wells currently used to study groundwater quality upgradient of the aquifer area under our wells. This serves as an "Early Warning" tool should dangerous contaminants threaten our existing wells. In 1992, Troy developed a Wellhead Protection Program, which serves to inventory potential sources of ground water contamination within a 5-year "time of travel" zone around our existing wells. Zoning regulations have been adopted to further reduce the risk of groundwater contamination within a 1-year time-of-travel zone around our wells. Public information will play a key role in providing additional risk reduction to protect this very important resource. A Source Water Assessment Plan (SWAP) is part of the City of Troy wellhead protection and monitoring program, and is now available at our office. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources. In 2010, the firm Malcolm Pirnie, Inc., completed a thorough review of this SWAP, including an update of inventories of potential contaminant sources.

According to the Source Water Assessment Plan, our City of Troy water system has a susceptibility rating of 'high'. City of Troy public water wells are located in the permeable sand and gravel deposits beneath the floodplain of the Great Miami River, with intake screens at depths of approximately 45-130 feet. There is not a known continuous confining layer (clay) between the upper aquifer (top 25 feet) and this deeper aquifer, thus creating the 'high' susceptibility rating of the deeper aquifer to contaminant flow. If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

Lead and Drinking Water

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. We are 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 www.epa.gov/safewater/lead.

City of Troy Water Plant does triennial sampling for both lead and copper. The most current sampling period was June and July of 2010, and no detections above the OEPA established action level were found for either copper or lead. The next sampling for both lead and copper by the City of Troy will be conducted in 2013.

A Review of 2010 Activities at the City of Troy Water Treatment Plant and Water Distribution System

The City of Troy Water Treatment Plant (WTP) pumped a total of 1,437,366,000 gallons of softened, filtered, and disinfected water to our distribution system for the period of January-December 2010. This included 189,917,200 gallons pumped to the Village of West Milton, and 132,360,800 gallons pumped to Miami County customers outside the city limits of Troy.

Additional statistics for 2010 for the WTP and the Water Distribution Dept. include: 1) 5,569 feet of new or replaced water main installed; 2) 38 water main breaks repaired; 3) repair of 13 major leaks with a projected water loss of 29,100 gallons per day; 4) 33 water taps made; and 5) 25 new service connections made. The WTP staff continue to pursue electrical energy conservation, both at the plant and in the well fields. Peak/off-peak metering has been installed at the WTP, and a substantial refund was received from our electrical supplier for incorrect billing rates applied for the period of 7/23/1997 through 12/4/2009.

The WTP is a 24-hour operation, with OEPA-certified operations staff on site every day of the year. Total staffing is nine, with an additional 4 water distribution servicemen and a Utilities Foreman in the Water Distribution Dept. The combined 2010 budget for the WTP and Water Distribution Dept. was \$2,466,109; actual 2010 expenditures totaled \$2,299,644 for these two departments.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) 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 (800) 426-4791 or www.epa.gov/safewater/hotline/.

Fact or Fiction

There is the same amount of water on Earth now as there was when the Earth was formed. (*Fact: The water that comes from your faucet could contain molecules that dinosaurs drank!*)

About half the water treated by public water systems is used for drinking and cooking. (*Fiction: Actually, the amount used for cooking and drinking is less than 1% of the total water produced!*)

A person can live about a month without food, but only about a week without water. (*Fact: Dehydration symptoms generally become noticeable after only 2% of one's normal water volume has been lost.*)

The first water pipes in the U.S. were made of cast iron. (*Fiction: The first water pipes were actually made of fire-charred bored logs.*)

The world's first municipal water filtration plant was opened in the United States. (*Fiction: The first plant was actually opened in Paisley, Scotland, in 1832.*)

A person must consume a half-gallon of water daily to live healthily. (*Fact: A person should drink at least 64 ounces, or 8 cups, of water each day.*)

One gallon of gasoline poured into a lake can contaminate approximately 750,000 gallons of water. (*Fact*)



Why do I get this report each year?

Community water system operators are required by Federal law to provide their customers an annual water quality report. The report helps people make informed choices about the water they drink. It lets people know what contaminants, if any, are in their drinking water and how these contaminants may affect their health. It also gives the system operators a chance to tell customers what it takes to deliver safe drinking water.

How much water is used during a typical shower?

The Federal Energy Policy Act set a nationwide regulation that limits showerheads to a maximum flow of 2.5 gallons per minute (GPM). Showerheads made before 1980 are rated at 5 GPM. Since the average shower is estimated to last 8.2 minutes, the old showerheads use 41 gallons of water while the newer, low-flow showerheads use only about 21 gallons.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state allows us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2010	2	2	0.0188	N/A–N/A	No	Erosion of natural deposits
Chlorine ¹ (ppm)	2010	[4]	[4]	0.68	0.24–1.20	No	Water additive used to control microbes
Fluoride ² (ppm)	2010	4	4	0.407	N/A–N/A	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2010	60	NA	3.31	N/A–N/A	No	By-product of drinking water disinfection
Nitrate (ppm)	2010	10	10	0.279	N/A–N/A	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2010	80	NA	17.1	N/A–N/A	No	By-product of drinking water disinfection
SECONDARY SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Total Dissolved Solids [TDS] (ppm)	2010	500	NA	187	N/A–N/A	No	Runoff/leaching from natural deposits
UNREGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE			
Bromodichloromethane (ppb)	2010	3.25	2.2–3.6	By-Product of disinfection and component of Total Trihalomethanes shown above.			
Bromoform (ppb)	2010	1.31	1.0–1.7	By-Product of disinfection and component of Total Trihalomethanes shown above.			
Chloroform (ppb)	2010	2.36	0.9–4.2	By-Product of disinfection and component of Total Trihalomethanes shown above.			
Dibromochloromethane (ppb)	2010	3.49	3.1–4.01	By-Product of disinfection and component of Total Trihalomethanes shown above.			
Sodium (ppm)	2010	23.8	N/A–N/A	Naturally occurring salts of calcium and magnesium.			

¹Footnote for City of Troy Water Treatment Plant: The value of 0.68 ppm as “Amount Detected” is the running annual average of the TOTAL CHLORINE measured in the routine bactee samples taken 25 times per month from the City of Troy water distribution system from January 1, 2010, through December 31, 2010.

²Footnote for City of Troy Water Treatment Plant: This is the amount of fluoride detected as naturally-occurring in the City of Troy raw well water, and remains in the finished water pumped to the distribution system. The City of Troy WTP does not add fluoride during the treatment process.

We have a current, unconditioned license to operate our water system.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): 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 treatment technology.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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.

MRDLG (Maximum Residual Disinfectant Level Goal): The level of a 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.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.