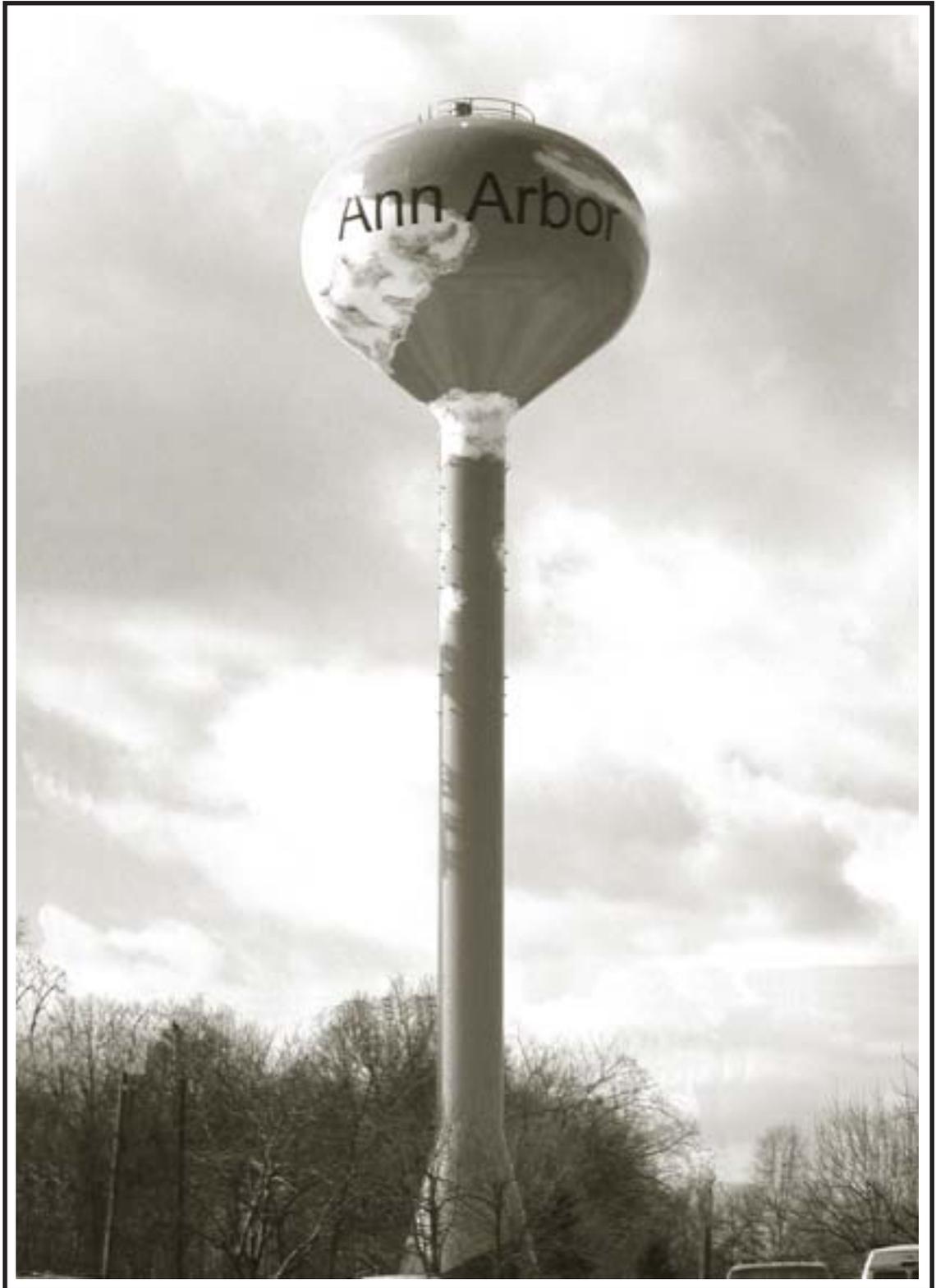


2006 DRINKING WATER QUALITY REPORT



Ann Arbor Public Services 2006 Annual Report on Drinking Water



<http://www.ci.ann-arbor.mi.us/utilities>

The staff of Ann Arbor Public Services is strongly committed to bringing you the best drinking water possible. We take pride in not only meeting all federal and state drinking water regulations, but in reaching higher goals. We participate in voluntary programs which improve our organization and establish more stringent water quality goals. Our monitoring programs far exceed those required to assure the quality of your drinking water. The USEPA requires water utilities provide the following information to their customers as part of their Annual Water Quality Report. This information is generic and may or may not apply to Ann Arbor drinking water. If you have any questions on this language, you may contact the USEPA Safe Drinking Water Hotline at (800) 426-4791.

Water Supply and Treatment

The Ann Arbor water supply is comprised of both surface and ground water sources. About 85% of the water supply comes from the Huron River. The remaining 15% is from multiple wells located south of Ann Arbor. The water from all the sources is blended at the water treatment plant. Since we use a surface supply, Huron River water, the United States Environmental Protection Agency (USEPA) and the Michigan Department of Environmental Quality (MDEQ) regulations require it to be treated, filtered and disinfected to ensure that any harmful substances are removed. When treatment is complete, the water is pumped to homes, schools and businesses in Ann Arbor as well as to Ann Arbor and Scio townships for resale to their customers.

The following is the official USEPA language on Cryptosporidium: *Cryptosporidium is a protozoan parasite that is too small to be seen without a microscope. It is sometimes found in some surface waters, especially when the waters contain a high amount of fecal waste from run-off or other activities. Those who are infected with this parasite can experience gastrointestinal illness.*

USEPA and the Centers for Disease Control have published guidelines on ways to reduce the risk of Cryptosporidium infection. The guidelines are available from the Safe Drinking Water Hotline at (800) 426-4791.

Huron River samples and drinking water samples collected during 2006 had no detectable levels of Cryptosporidium.

The following is the official USEPA language on contaminants that may be in untreated water: *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 and through the ground, it dissolves naturally occurring minerals and can pick up substances resulting from the presence of animals or from human activity.*

Contaminants that might be expected to be in source water - untreated water - include: microbial contaminants, such as viruses and bacteria; inorganic contaminants, such as salts and metals; pesticides and herbicides; organic chemical contaminants; including synthetic and volatile organic chemicals; and radioactive contaminants, which can be naturally occurring.

In order to ensure tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. 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 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 EPA Safe Drinking Water Hotline at (800) 426-4791.

The following is the official USEPA language on low resistance to infection: *Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly and infants can be particularly at risk from infections. These people should seek advice from their health care providers. Environmental Protection Agency / Centers for Disease Control guidelines on appropriate means to lessen the risk of infection from Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at (800) 426-4791.*

Source Water Assessment and Protection Plan

The City of Ann Arbor has recently completed a Source Water Assessment and Protection Plan. This plan determines the protection areas for all of our sources of supply, assesses the potential for contamination and develops plans for improving protection of those areas. The sources for Ann Arbor’s drinking water are the **Huron River (85%)** and three **Steere Farm groundwater wells (15%)**. Each of the groundwater wells is over 100 feet deep. In addition, the City also owns a Northwest supply well which is out of service since 2001 due to water quality concerns.

The State of Michigan performed an assessment of the Huron River water supply in 2003. The City completed wellhead protection programs in 2003 for the groundwater wells and updated the wellhead protection area for Steere Farm in 2006. The assessments for both the river and groundwater supplies included determining the relative potential of contamination impacting each source of supply. This potential for impact was evaluated using two methods: sensitivity and susceptibility. These methods use a six-tiered scale to rate the potential for contamination. The scale ranges from “very low” to “high”. The Sensitivity rating is based on the natural protection provided for the source water, such as geologic formations and observed water chemistry. The Susceptibility rating is based on the number and types of potential contaminant sources located within our source water protection areas.



Both the sensitivity and susceptibility of all of our sources as evaluated by the MDEQ are given in the following table.

Drinking Water Sources	Sensitivity	Susceptibility
Huron River 85%	High	High
Steere Farm wells 15%	Moderately high	Moderate
Northwest Supply well off-line	Moderately high	Moderate

Significant sources of potential contamination for the Huron River include automotive refueling and repair facilities, manufacturing facilities, agriculture, and wastewater treatment operations/discharges. Additional impacts on the Huron River quality include the discharges received by the river, chemical spills, increasing urbanization, invasive species, and eutrophication of Barton pond. Significant sources of potential contamination for the Steere Farm wells include manufacturing facilities, airport operations, naturally occurring chemicals, and leaking underground storage tanks (gasoline). The City is making efforts to protect area drinking water sources, such as mailing tip cards to all residents and businesses. Tip cards recommend actions that people can take to protect all water supplies in the region.



Frequently Asked Questions

What is the compliance status of the City of Ann Arbor Water Supply regarding USEPA's Groundwater Rule (GWR) issued in October 2006?



The GWR applies to public water systems that serve ground water or mix surface water and ground water if the ground water is added directly, without any treatment, to the water distribution system. Although the City of Ann Arbor water supply uses surface and ground water, it blends surface and ground water at the water treatment plant and provides full treatment to the ground water before distribution. Hence, the City of Ann Arbor does not have to make any changes in response to the GWR.

Are meetings about the water system open to the public?

Yes. The Service Area Administrator of the Public Services Area attends the Ann Arbor City Council meetings to provide information on the water system. All Council general sessions, the first and third Monday of each month, are open to the public. Unless announced otherwise, the meetings are at 7:00 PM in Council Chambers at City Hall, 100 North Fifth Avenue. Council meetings are also broadcast on cable channel 16, CTN. In addition, Public Services holds targeted public meetings to discuss improvements and to listen to our citizens' and customers' concerns.

What is the City of Ann Arbor doing to protect its drinking water supply?

The City of Ann Arbor Water Treatment Plant conducts extensive routine monitoring of water quality. Our testing program far exceeds current regulatory requirements and we are vigilant against potential threats to our water system. In addition, we have taken steps to enhance the physical security of our water system. We are following recommendations made by our local police, our state regulatory agency, the American Water Works Association and others. We will continue to work 24 hours a day to protect the City of Ann Arbor and its customers from potential threats to its drinking water. Complying with the Bioterrorism Act of 2002, an extensive analysis and vulnerability assessment of your drinking water system was completed in March of 2003. As a result of this assessment, a number of recommendations have been implemented and additional items are currently underway.

Construction Projects

A new 600,000 gallon equalization basin and associated pump station is currently under construction at the Water Treatment Plant. This work is necessary to comply with a rule published by the USEPA on June 8, 2001 called the Filter Backwash Recycle Rule. The equalization basin and pump station will allow the Water Treatment Plant to reduce the return rate of filter backwash water and other recycle streams back into the treatment process. This modification to the treatment process will minimize fluctuations in the flow through the plant thus improving treatment. Construction is estimated to last about 18 months and is scheduled for completion in May 2008.



Water Quality Test Results

The following regulated substances were detected in some samples.

Please note that some substances, such as monochloramine and fluoride, are added to the water to improve health. All the detected substances are well within stringent Federal and State limits.

Definitions: The following tables contain scientific terms and measures, some of which may require explanation.

- **Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the Maximum Contaminant Level Goal as feasible using the best available treatment technology.
- **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.
- **mg/l:** milligrams per liter or parts per million - or one ounce in 7,350 gallons of water
- **µg/l:** micrograms per liter or parts per billion - or one ounce in 7,350,000 gallons of water
- **na:** not applicable
- **Avg:** Regulatory compliance with some MCLs are based on running annual average of monthly or quarterly samples. For calculation example, see web site, <http://www.ci.ann-arbor.mi.us/utilities>

Regulated at the Water Treatment Plant

Regulated Substance	Highest Level Detected	Range of Individual Samples	MCL	MCLG	Source of Contamination
Fluoride	1.13 mg/l	0.57 – 1.13 mg/l	4 mg/l	4 mg/l	Added to water to promote strong teeth. Erosion of natural deposits. Discharge from fertilizer factories.
Nitrate	0.99 mg/l	0.02 – 0.99 mg/l	10 mg/l	10 mg/l	Run-off from fertilizer use. Leaching from septic tanks and sewage. Erosion of natural deposits.
Nitrite	31.5 µg/l	6.2 – 31.5 µg/l	1000 µg/l	1000 µg/l	Run-off from fertilizer use. Leaching from septic tanks and sewage. Erosion of natural deposits.
Bromate	3.5 µg/l avg	2 – 7 µg/l	10 µg/l	0 µg/l	By-product of ozone disinfection of drinking water.
Total Organic Carbon	27% Removal ¹	27–57% Removal	<25% Removal (TT)	na	Naturally occurring
Arsenic	0 µg/l	0 µg/l	10.0 µg/l	0 µg/l	Erosion of natural deposits
Barium	24 µg/l	0 – 24 µg/l	2000 µg/l	2000 µg/l	Erosion of natural deposits
Chromium	6.4 µg/l	0–6.4 µg/l	100 µg/l	100 µg/l	Erosion of natural deposits

¹Poorest removal corresponds to highest concentration

Monochloramine - Regulated at the Distribution System

Definitions:

- **Maximum Residual Disinfectant Level (MRDL):** The highest level of disinfectant allowed in drinking water.
- **Maximum Residual Disinfectant Level Goal (MRDLG):** The level of disinfectant in drinking water below which there is no known or expected risk to health. MRDLG's allow for a margin of safety.

Regulated Substance	Highest Level Detected	Range of Individual Samples	MRDL	MRDLG	Source of Contamination
Monochloramine	2.44 mg/l avg	2.39–2.76 mg/l	4 mg/l	4 mg/l	Disinfectant added at Water Plant

Turbidity - Regulated at the Water Treatment Plant

Definitions:

- **Turbidity:** A measure of cloudiness of water. The Ann Arbor Water Treatment staff monitors it because it is a good indicator of the effectiveness of the filtration system. Turbidity must be less than 0.3 NTU in at least 95% of the measurements taken throughout each month. It must never exceed 1.0 NTU.
- **Nephelometric Turbidity Unit (NTU):** A measure of light scattered from particles in the water.
- **Treatment Technique (TT):** A process intended to reduce the level of a contaminant in drinking water.

Regulated Element	95th Percentile TT achieved (max)	95th Percentile TT required	95th Percentile TT voluntary goal	Lowest % of samples within requirements	Single highest measurement	Source of Contamination
Turbidity	0.11 NTU	0.3 NTU	0.1 NTU	*	4.99 NTU	Soil Runoff

*All samples with the exception of one sample were within requirements.

Water Quality Test Results

The following regulated substances were detected in some samples.

Copper and Lead - Regulated at the Customer's Tap - All samples collected and analyzed were well within the strict Federal and State limits. The data is from the 2005 testing conducted in accordance with regulations.

Definitions:

- **Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **Action Level Goal (ALG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. ALG's allow for a margin of safety.

Regulated Substance	Detection Level at the 90th Percentile	Detection Level		Source of Contamination
		AL	ALG	
Copper - 2005 Customers plumbing	80 µg/l	1300 µg/l	1300 µg/l	Corrosion of household plumbing systems Erosion of natural deposits
Lead - 2005 Customers plumbing	3 µg/l	15 µg/l	0 µg/l	Corrosion of household plumbing systems Erosion of natural deposits

Regulated in the Distribution System

Regulated Substance	Highest Level Detected	Range of Individual Samples	MCL	MCLG	Source of Contamination
Total Coliform	Detected in 0.71% of all samples taken in January	0 – 0.71%	Detected in not more than 5% of samples taken monthly	0	Naturally occurring in the environment
Total Trihalomethanes	¹ 4.7 µg/l avg	1 – 6 µg/l	80 µg/l	0 µg/l	By-product of drinking water disinfection
Total Haloacetic Acids	¹ 6 µg/l avg	3 – 12 µg/l	60 µg/l	0 µg/l	By-product of drinking water disinfection

¹ Highest running annual average of last four quarters

These tests also showed the following characteristics in our water. Federal and State standards have yet to be established and all results are within limits accepted by most public health officials.

Non-regulated Substance	Average	Range of Individual Samples	Source of Contamination
Hardness	143 mg/l	100 – 198 mg/l	Naturally occurring minerals; controlled by water treatment process
pH	9.3	8.1 – 9.5	Controlled by water treatment process
Aldehydes	8 µg/l	0 – 33 µg/l	By-product of drinking water ozonation
Ammonia	0.12 mg/l	0.04 – 0.26 mg/l	Naturally occurring, added to water to form disinfectant
Methyl t-butyl ether (MTBE)	0 µg/l	0 µg/l	Gasoline additive
1,4-Dioxane	0 µg/l	0 µg/l	Groundwater contamination from manufacturing process and landfills
Perchlorate	0 µg/l	0 µg/l	Groundwater contamination from manufacturing process

Water Quality Test Results

UCMR - Unregulated Contaminants Monitoring Results

Unregulated contaminants are those for which the USEPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the USEPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. Only one unregulated contaminant was detected.

Unregulated Contaminant	Average	Range of Individual Samples	Source of Contamination
Sodium	59 mg/l	48 – 71 mg/l	Naturally occurring minerals; run-off of road salt into surface water

Additional Information & Contacts

Customer Service and Billing Information:

Customer Service Center
100 North Fifth Avenue
Ann Arbor, Michigan 48107
(734) 994-2818

Water Quality and Treatment:

Water Treatment Services
919 Sunset Road
Ann Arbor, Michigan 48103
(734) 994-2840

email: water@ci.ann-arbor.mi.us

<http://www.ci.ann-arbor.mi.us/utilities>



Notice of Violations

We monitor your drinking water for specific contaminants on a regular basis as required by the USEPA and MDEQ. In addition to all required testing, we voluntarily monitor more frequently and for many additional potential contaminants. Results of regular monitoring are an indicator of whether or not your drinking water meets health standards. On July 17, 2006 around 11:00 pm, a problem occurred with the treatment system due to an electrical power outage. Turbidity standards were exceeded at the water treatment plant for two hours. Turbidity is a measure of the cloudiness of water. Bacteriological testing of water samples indicated that the safety of the City's drinking water was not jeopardized during the event. A notice of this incidence was mailed to customers on August 10, 2006.

AFTER HOURS EMERGENCY: (734) 994-2840

The Water Treatment Services Unit is staffed 24 hours per day. In the event of emergencies such as water main breaks, emergency water turn-offs and sanitary or storm sewer back-ups, please call the City of Ann Arbor Water Treatment Services Unit.



***City of Ann Arbor
Water Treatment Services***

***919 Sunset Rd.
Ann Arbor, MI 48103
(734)-994-2840***

Presorted
Standard Mail
U.S. Postage Paid
Ann Arbor, MI
Permit No. 178



Plant overview photo provided at no charge courtesy of Dale Fischer © 2004



printed on recycled material

<http://www.ci.ann-arbor.mi.us>