2009 WATER QUALITY REPORT

THE CITY OF DUBUQUE
Masterpiece on the Mississippi

Sustainability

Sustainability is defined by a community's ability to meet the environmental, economic, and social equity needs of today without reducing the ability of future generations to meet their needs.

Sustainable Dubuque is a holistic approach to making our community sustainable. Our model involves a three-part approach that looks at:

- *Environmental and Ecological Integrity*
- *Economic Prosperity*
- *Social and Cultural Vibrancy*

Each of these pieces is important individually and helps contribute to a sustainable community. Find out more about how the model works, contact Sheila Samuelson, *Sustainable Community Coordinator* at 563.690.6063 or by e-mail at *ssamuels@cityofdubuque.org*.

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SUSTAINABLE DUBUQUE
viable • livable • equitable

Working Hard For You

Through the federal Safe Drinking Water Act (SDWA), the U.S. Environmental Protection Agency (EPA) sets national limits for hundreds of substances in drinking water and also specifies various treatments that water systems must use to remove these substances. Each system continually monitors for these substances and reports to the EPA if the substances are detected in the drinking water. The EPA uses this data to ensure that consumers are receiving clean water and to verify that states are enforcing laws that regulate drinking water.

This publication conforms to the SDWA requirement that water utilities annually provide detailed water quality information to each of their customers. We are committed to providing you with this information about your water supply because customers who are well informed are our best allies in supporting improvements necessary to maintain the highest drinking water standards.

Community Participation

The Dubuque City Council meets the first and third Monday of each month in the Council Chambers on the second floor of the Historic Federal Building at 350 West 6th Street. The meetings begin at 6:30 p.m. and are broadcasted live on CityChannel 8, Dubuque's local government access channel on the Mediacom cable system. It is also streamed on our website at *www.cityofdubuque.org/media*. In the event of a holiday, meetings are held on the following Tuesday. Please feel free to participate in these meetings or call Bob Green, *Water Department Manager, at* 563.589.4291 for more information. For additional information, visit the city's web site at *www.cityofdubuque.org*.

Our Commitment to You

The City of Dubuque Water Department is proud to present you with our annual water quality report. We are dedicated to producing drinking water that meets or exceeds all state and federal drinking water standards. The purpose of this report is:

- *To provide you with information about your drinking water.*
- *To comply with the United States Environmental Protection Agency (EPA) reporting requirements.*

We continually strive to adopt new and better methods of delivering the best quality drinking water to you. As regulations and drinking water standards change, it is our commitment to incorporate these changes system-wide in an expeditious and cost-effective manner.

We have summarized information about your water supply sources, the water facilities that deliver water to your tap, and the quality of your drinking water. As new challenges to drinking water safety emerge, we will be diligent in maintaining our objective of providing quality drinking water at an affordable price. If you have any health concerns relating to the information in this report, we encourage you to contact your health care provider. For more information about this report, or for any questions relating to your drinking water, please contact Bob Green, *Water Department Manager,* at 563.589.4291 or Jacqueline Vanek, *Water Plant Manager,* at 563.589.4290, or by e-mail at *jvanek@cityofdubuque.org*.

Water Sources

The City of Dubuque Water Department obtains all of its drinking water from wells. There are five shallow and four deep wells in service.

The shallow alluvial wells are located on the Hawthorne Street boat ramp peninsula of the Mississippi River, now called A.Y. McDonald Park. A hydrological study found that their recharge water actually comes from the underlying bedrock aquifers despite their close proximity to the river. Well depths vary from 127 feet to 200 feet and all are cased to 100 feet. Individual well capacities range from 1.55 to 3.30 million gallons daily (MGD) and the theoretical combined capacity of all five wells is 14.15 MGD.

The four deep wells are located within a 1,500 foot radius of the treatment plant. These wells are all cased to 500 feet and individual well depths vary from 1,560 feet to 1,800 feet. The Cambrian aquifer system is the primary source of water. The theoretical combined capacity of the deep wells is 9.6 MGD and individual well production ranges from 0.9 to 3.25 MGD.

The City of Dubuque obtains a portion of its water from the Cambrian-Ordovician and Cambrian aquifers. These aquifers are not susceptible to contamination due to the confining characteristics of the overlying materials. A detailed evaluation of our source water was completed by the Iowa Department of Natural Resources and is available at the City of Dubuque Eagle Point Water Plant, at 563.589.4291.

The Treatment Process

The first step in our water treatment process is aeration of the raw well water. Aeration removes undesirable gases such as radon and hydrogen sulfide. It also oxidizes iron and manganese.

We then begin the softening process by adding slaked lime, which is calcium oxide (*lime*) mixed with water. The addition of lime causes the minerals that typically make water "hard" to settle out of the water.

Next, an anionic flocculant aid is then added to help improve the clarity of the water by allowing fine particles to clump together and settle out.

The slaked lime increases the pH of our water to about 10. In order to stabilize the softened water, the pH must be lowered. This pH reduction is accomplished by adding carbon dioxide until the pH is approximately 9.3.

After pH reduction, liquid chlorine (sodium hypochlorite) is added to disinfect the water. The chlorine helps ensure our water's microbiological safety by destroying disease-causing organisms.

The chlorinated water is then passed through sand and gravel filter beds to remove any remaining suspended particles.

Then, fluoride is added to the water to help prevent tooth decay.

Just before the water is pumped into the distribution system, a phosphate solution is added to chemically stabilize the water and lessen the possibility that lead will leach out of pipes and into tap water.

Special Health Information

Thanks to the Safe Drinking Water Act, the United States has the safest water supply and distribution system in the world. However, if you have special health requirements, you should know some people may be more vulnerable to contaminants found 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 about drinking water from their health care providers. EPA Centers for Disease Control 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.

Information Concerning Lead

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Dubuque Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline 800.426.4791 or at *www.epa.gov/safewater/lead*.

Substances Found in Drinking Water

To ensure that tap water is safe to drink, the 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. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 800.426.4791.

Public water systems and water bottlers use a variety of water sources. These sources include rivers, lakes, ponds, reservoirs, springs, and groundwater wells. As water travels over the surface of the land or through the ground, it can acquire naturally occurring minerals, radioactive material (if present), and can pick up 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, and wildlife.
Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
Pesticides and herbicides, which may come from sources such as agriculture, urban storm water runoff, and residential uses.
Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
Radioactive contaminants, which can be naturally occurring or be the result of oil and mining activities.

2008 Drinking Water Summary

The City of Dubuque Water Department is proud of the high quality of our water supply, which meets or exceeds all state and federal drinking water quality requirements. We are pleased to inform you that Dubuque had no drinking water violations for 2008. The table below lists substances that were detected in our water. Some of these substances have maximum contaminant levels (MCLs) established by the Safe Drinking Water Act. The EPA also requires us to monitor for certain unregulated substances while they consider whether or not to enforce limits on them. Testing is not required for each parameter every year, some parameters listed below were detected in previous years' testing. For more information concerning your drinking water, please contact the Eagle Point Water Treatment Plant by phone at 563.589.4291, by e-mail at *wtrdepart@cityofdubuque.org* or by mail at 1902 Hawthorne Street, Dubuque, IA 52001.

SUBSTANCES TESTED FOR AT THE TREATMENT PLANT

SUBSTANCE	YEAR SAMPLED	UNITS OF MEASURE	MCL	MCLG	AMOUNT DETECTED	RANGE (LOW - HIGH)	VIOLATION	TYPICAL SOURCE
Chlorine	2008	ppm	MRDL = 4.0	MRDLG = 4.0	1.78	1.05 - 2.54	NO	Water additive used to control microbes
Fluoride	2008	ppm	4.0	4.0	1.00	0.15 - 1.65	NO	Water additive that promotes strong teeth; erosion
Nitrate	2008	ppm	10	10	0.03	0.03	NO	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Sodium	2006	ppm	No MCL	N/A	13.8	13.8	NO	Erosion of natural deposits

SUBSTANCES TESTED FOR IN THE DISTRIBUTION SYSTEM

SUBSTANCE	YEAR SAMPLED	UNITS OF MEASURE	MCL/AL	MCLG	COMPLIANCE		DETECT		SAMPLES		VIOLATION	TYPICAL SOURCE
					TYPE	VALUE	MIN	MAX	TOTAL	EXCEED		
Fecal Coliform and E. coli	2008	P/A	A routine sample and a repeat sample are total coliform positive and one is also fecal coliform or E. coli positive	0	TCR		N/A	N/A	1	1	NO	Human and animal fecal waste
Total Coliform Bacteria	2008	P/A	Presence of coliform bacteria in >5% of monthly samples	0	TCR		N/A	N/A	68	1	NO	Naturally present in environment
Copper	2008	ppm	AL = 1.3	1.3	90th Percentile	0.02	ND	0.03	30	0	NO	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead	2008	ppb	AL = 15	0	90th Percentile	12	ND	29	33	1	NO	Corrosion of household plumbing systems; Erosion of natural deposits
Total Trihalomethanes (TTHM)	2008	ppb	80	N/A	RAA	52.7	36.6	68.0	4	0	NO	By-products of drinking water disinfection
Total Haloacetic Acids (HAA5)	2008	ppb	60	N/A	RAA	13.1	11.8	14.9	4	0	NO	By-products of drinking water disinfection
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Total Trihalomethanes (TTHM)	2008	ppb					16.5	70.8	24		NO	By-products of drinking water disinfection
Total Haloacetic Acids (HAA5)	2008	ppb					8.8	22.1	24		NO	By-products of drinking water disinfection

Table Definitions:

Action Level (AL): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
Amount Detected: This column represents an average of sample result data collected during the reporting year. In some cases, it may represent a single sample if only one sample was collected.
MGD: Million Gallons Daily.
Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to MCLGs 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. MCLGs allow for a margin of safety.
Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water.
Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health.
N/A: Not Applicable.
ND: Not detectable at testing limits.
P/A: Presence Absence test.
ppb: Parts per billion (or micrograms per liter).
ppm: Parts per million (or milligrams per liter).
RAA: Running Annual Average.
Range (Low - High): This column represents a range of individual sample results, from lowest to highest, that were collected during the reporting year.
TCR: Total Coliform Rule.