

What's Inside?

The City of Defiance Water Division has prepared the following report to provide information to you, the consumer, on the quality of our drinking water. Included within this report is general health information, water quality test results, how to participate in decisions concerning your drinking water and water system contacts. Please share this information with other water consumers, such as renters and customers, who may not have received a copy of this report by mail.

The City of Defiance operates under a license from the Ohio EPA. Our Public Water System Identification (PWSID) is OH2000111 and is valid until January 30, 2011.



Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, o hable con alguien que lo entienda.

Tài liệu này có tin tức quan trọng về nước uống của quý vị. Hãy nhờ người dịch cho quý vị, hoặc hỏi người nào hiểu tài liệu này.

此报告包含有关您的饮用水的重要信息。请人帮您翻译出来，或请看懂此报告的人将内容说给您听。

How Do I Get Involved?

You are invited to attend the City Council meetings to voice your concerns about your drinking water. City Council meetings are open to the public and are held at 631 Perry Street on Tuesdays at 7:30 pm.

You can also help by keeping the streams and rivers clean and reporting any potential spills or pollution sources. Accidental or unauthorized releases of contaminants to the air, land or water such as spills, releases, intentional dumping or emissions can be reported to Ohio EPA 24-hour EMERGENCY RESPONSE hotline at 800-282-9378. You can also call the Water Treatment Plant at 419-782-1886.



Need More Information?

For more information on water in Defiance or to schedule a group tour, please contact:

Richard J. Kipp, Water Superintendent

1356 Baltimore Street, Defiance, Ohio 43512

Phone: 419-782-1886 Fax: 419-782-6510

Email: rkipp@cityofdefiance.com

If you would like to take a tour of the Water Treatment Plant, get a small group together (friends, family, church, school, 4-H, bowling team, or whatever) then call the Water Superintendent to schedule a date and time.

For more information about water related issues, please visit the following sites online:

Ohio EPA Public Interest Center at:
www.epa.state.oh.us/pic/

American Water Works Association at:
www.drinktap.org/consumerdnn/



City of Defiance Water Treatment

2009 Annual Water Quality Report

What's New

The Defiance Water Division is always working hard to improve the quality of your water. The Water Treatment Plant has continued to make improvements to the treatment process. During 2009, we began construction of a new coagulant storage facility to replace the ageing tanks currently used. Our carbon feed system was updated and improvements were made to the drive units on the flocculation basins. The lime chemical feed lines were replaced. The Water Plant also finished up a study to determine the possibility of switching from Ferric Chloride to Alum as our main coagulant. An in-plant trial of alum will be conducted in 2010. If successful, the alum should improve organics removal and reduce treatment costs.

Water Distribution was also busy during 2009. A new 12" waterline was installed on Stadium Drive by Water Distribution and a contractor. Our crews also installed four new hydrants, seven new valves, two new side taps, and relocated two smaller waterlines. Last year, the Water Division responded to 1972 OUPS Locates, 102 of which were generated from this division because of leaks that needed repaired and other tasks. The Water Division also began making preparations for the ODOT work which will begin in 2010 on N. Clinton Street.

In 2009, the Water Division treated 1.22 billion gallons of water, with an average daily flow of 3.3 million gallons. Our peak daily flow was 4.8 million gallons. The distribution system delivers the treated water to City of Defiance customers and the surrounding area through more than 111 miles of waterlines. Defiance also supplies water to Christi Meadows, Brunersburg and Ayersville. These satellite systems should receive a report similar to this from their system managers.

Defiance's new reservoir has been in operation for two years now. The reservoir has greatly improved the quality of water we use to produce drinking water and allows us to selectively pump water from the river. There were two occasions during 2009 when the nitrates in the river were high enough to be a problem. By using the reservoir and not pumping from the river, we were able to avoid nitrate violations which plagued the City in the past. We have also been able to further reduce Trihalomethanes to well below the limits set by the Ohio EPA. Trihalomethanes are formed when chlorine is used to disinfect water that contains organic material. By allowing the water to settle in the reservoir before treatment, the organics are naturally reduced. Defiance has not had a violation of Trihalomethanes for several years now.

Defiance did however have some taste and odor issues at the end of 2009 into 2010 related to the reservoir. An algae byproduct called Geosmin was found as the cause. The employees of the Water Division worked extremely hard to correct this problem. We are also investigating ways to be better prepared should this issue arise in the future. Unfortunately, a Geosmin out-

break in the reservoir is very hard to predict and cannot be prevented from occurring.

Defiance Reservoir Amenities

Several new things are going on at the Defiance Reservoir. ODNR has been stocking the reservoir with a variety of fish and the local fishermen had been enjoying that part of the reservoir. Last year the City received a grant from ODNR to complete the boat ramp and parking area. This will be completed by the fall of 2010. The layout of the Disc Golf Course has begun and will also be completed this spring. So far, seven benches have been purchased by local businesses or individuals and will be installed around the top of the reservoir near the quarter mile markers that were installed in 2009. We appreciate the donation of these benches and also would like to thank Michael Gallagher who is installing the benches as a Boy Scout Project. This year we will be working on designing several additions to the reservoir park, including: a new dog park, one or two shelter houses, and landscaping around the ODNR sign located at the south end of the reservoir.

The City, in conjunction with several local citizens, has established a Reservoir Subcommittee to determine how best to utilize the reservoir and surrounding acreage. The Subcommittee is currently looking for funding to help with these improvements. If you would like to get involved with the Reservoir Subcommittee or are interested in information on funding a future project, contact Rob Cereghin, Service Director at 419-784-2745.

Where Does My Water Come From?

Defiance uses surface water from the Maumee River and the Upper Maumee Watershed. An estimated 57% of Ohio's population gets its drinking water from surface water sources. Water from the Maumee River is pumped through a 36" pipe to the reservoir located on Precision Way. Here the water has a chance to settle, providing the water plant with a more consistent water quality. The water then flows by gravity through a 42" pipe to the Water Plant for treatment. This allows the reservoir to act as a pretreatment basin or as an alternate source of supply during times when large amounts of silt and other contaminants such as nitrates can be washed into the river making the water hard to treat.

Source Water Assessment and Watershed Protection

The City of Defiance public water system uses surface water drawn from an intake on the Maumee River. For the purposes of source water assessments, in Ohio all surface waters are considered to be susceptible to contamination. By their nature, surface waters are readily accessible and can be contaminated by chemicals and pathogens which may rapidly arrive at the public drinking water intake with little warning or time to prepare. The City of Defiance's drinking water source protection area contains potential contaminant sources such as agriculture, home construction, industrial and

commercial businesses, septic systems, wastewater treatment plants, roadways and railways.

The City of Defiance's public water system treats the water to meet drinking water quality standards, but no single treatment technique can address all potential



contaminants. The potential for water quality impacts can be further decreased by implementing measures to protect the Maumee River.

More detailed information is provided in the City of Defiance's Drinking Water Source Assessment report. Requests for a copy of the 21 page report must be made in writing to the City of Defiance Water Superintendent.

The City of Defiance is currently working with the Upper-Maumee Watershed Partnership, which is a group of local agencies, businesses and citizens concerned about protecting the environment and our source of drinking water. If you are interested in participating or just learning more, contact the Defiance Water Plant at 419-782-1886 or Jason Roehrig at the Defiance County Soil and Water Conservation District office at 419-782-8751.

What are Some Sources of Contamination to Drinking Water?

The sources of drinking water both tap water and bottled water includes 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, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include: (A) Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife; (B) 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; (C) Pesticides and herbicides, which may

come from a variety of sources such as agriculture, urban storm water runoff, and residential uses; (D) 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; and (E) Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, USEPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. FDA 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 Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

Who Needs to Take Special Precautions?

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 infection. These people 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 (1-800-426-4791).

Fluoride and Infants

The following information is from the American Dental Association: Since fluoride levels in both tap and bottled water can vary, parents and caregivers should first consult with their pediatrician, family physician or dentist on the most appropriate water to use in their area to mix infant formula. Some children may have special medical needs, so be sure to ask your family physician or pediatrician whether water used for infant formula should be sterilized.

- More research is needed before definitive recommendations can be made regarding fluoride intake for infants. While these studies are being conducted, the American Dental Association has posted guidance for parents who wish to reduce their children's fluoride intake from birth to age one.

- The ADA offers these recommendations so parents, caregivers and health care professionals have some simple and effective ways to reduce fluoride intake from reconstituted infant formula:

- For infants who get most of their nutrition from formula during their first 12 months, ready-to-feed formula is preferred to help ensure that they do not exceed the optimal amount of fluoride intake.

- If liquid concentrate or powdered infant formula is the primary source of nutrition, it can be mixed with water that is fluoride free or contains low levels of fluoride to reduce the risk of fluorosis. Examples are water that is labeled purified, demineralized, deionized, distilled or reverse osmosis filtered water. Many grocery stores sell these types of drinking water for less than \$1 per gallon.

Parents and caregivers should consult with their pediatrician, family physician or dentist on the most appropriate water to use in their area to reconstitute infant formula. Ask your pediatrician or family physician whether water used in infant formula should be sterilized first (sterilization, however, will not remove fluoride). For more information go to: http://www.cdc.gov/fluoridation/safety/infant_formula.htm

Fluoride and Kidney Patients

The following information is from the National Kidney Foundation: On the basis of the available evidence, Kidney Health Australia has developed the following position statement regarding fluoridation of community water supplies:

- There is no evidence that consumption of optimally fluoridated drinking water increases the risk of developing Chronic Kidney Disease (CKD), although only limited studies addressing this issue are available

- There is consistent evidence that impairment of kidney function results in changes to the way in which fluoride is metabolized and eliminated from the body, resulting in an increased burden of fluoride

- There is no evidence that consumption of optimally fluoridated drinking water poses any health risks for people with CKD, although only limited studies addressing this issue are available

- There is limited evidence that people with stage 4 or 5 CKD who ingest substances with a high concentration of fluoride may be at risk of fluorosis

- Monitoring of fluoride intake and avoidance of fluoride-rich substances would be prudent for people with stage 4 or 5 CKD, in addition to regular investigations for possible signs of fluorosis

Monitoring & Reporting Violations & Enforcement Actions

The Defiance Water Division is pleased to report that no monitoring violations, reporting violations or enforcement actions were received from the Ohio EPA during the 2009 calendar year.

About Your Drinking Water

The EPA requires regular sampling to ensure drinking water safety. The City of Defiance Water Division conducted sampling for bacteria, inorganic, radiological, and synthetic organic and volatile organic contaminants

during 2009. Samples were collected for more than 100 different contaminants, most of which were not detected in the Defiance water supply. Listed on the chart in this brochure is information on those contaminants that were found in the City of Defiance water during 2009. The Ohio EPA requires systems to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, are more than one year old.

Taste, odor and color are aesthetic components of drinking water and are not regulated by the Ohio EPA. However, the Defiance Water Division is just as concerned about these aspects of its drinking water. From time to time, rust from the inside old iron water mains or from your plumbing may be dislodged by high flow. During certain times of year, taste and odor problems may occur due mainly to algae in the raw water supply. Defiance Water is working hard to control and eliminate these problems from our water. If you have questions or concerns about your water, contact the Water Division office at 419-782-1886.

Specific Contaminant Information

Some people who drink water containing fluoride well in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled or discolored teeth.

Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.

Turbidity is a measure of the cloudiness of water and is an indication of the effectiveness of our filtration system. The turbidity limit set by the EPA is 0.3 in 95% of the daily samples and shall not exceed 1 NTU at any time. As reported on the contaminant table, the Defiance Water Plants highest recorded turbidity result for 2009 was 0.38 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100%.

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. Defiance Water Division 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 thirty seconds to two 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. A list of laboratories certified in the State of Ohio to test for lead may be found at <http://www.epa.state.oh.us/ddagw> or by calling 614-644-2752. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at 800-426-4719 or at <http://www.epa.gov/safewater/lead>.

Definitions of some terms contained within this report.

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 Contaminant level (MCL): The highest level of contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Parts per Million (ppm) or Milligrams per Liter (mg/L) are units of measure for concentration of a contaminant. A part per million corresponds to one second in a little over 11.5 days.

Parts per Billion (ppb) or Micrograms per Liter (µg/L) are units of measure for concentration of a contaminant. A part per billion corresponds to one second in 31.7 years.

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

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 (MRDL): The highest residual disinfectant level 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 residual 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.

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

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

The “<” symbol: A symbol which means less than. A result of <5 means that the lowest level that could be detected was 5 and the contaminant in that sample was not detected.

IDSE: Initial Distribution System Evaluation. This EPA required study will be conducted over the next several year to evaluate these disinfection byproducts throughout the water distribution system.

2009 TEST RESULTS FOR CITY OF DEFIANCE WATER DIVISION							
Contaminants (Units)	MCLG	MCL	Level Found	Range of Detection	Violation Yes/No	Year Sampled	Typical Sources of Contaminants
Microbiological Contaminants							
Turbidity (NTU)	N/A	TT	0.38	0.00-0.38	No	2009	Soil Water Runoff
Turbidity (% Samples meeting standard)	N/A	TT=95 %	100%	100%	No	2009	
Total Organic Carbon (TOC)	TT	N/A	2.2	2.1 - 2.7	No	2009	Naturally present in the Environment
The value reported under "Level Found" for TOC is the lowest ratio between percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than one (1) indicates that the water system is in compliance with TOC removal requirements. A value of less than one (1) indicates a violation of the TOC removal requirements.							
Residual Disinfectants							
Total Chlorine (ppm)	MRDL= 4	MRDL= 4	1.4	1.2 - 1.5	No	2009	Water additive used to control microbes.
Inorganic Contaminants							
Copper (ppm)	1.3	AL = 1.3	0.174	<0.05 – 1.65	No	2007	Corrosion of household plumbing systems; Erosion of natural deposits.
	One out of thirty samples was found to have copper levels in excess of the Action Level of 1.3 ppm						
Lead (ppb)	0	AL = 15	14	<5.0 - 248	No	2007	plumbing systems; Erosion of natural deposits.
	Three out of thirty samples were found to have lead levels in excess of the Action Level of 15ppb.						
Fluoride (ppm)	4	4	1.04	0.85 - 1.2	No	2009	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate (ppm)	10	10	3.1	0.7 - 3.1	No	2009	Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium (ppm)	2	2	0.007	0.007	No	2009	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Synthetic Organic Contaminants including Pesticides & Herbicides							
Atrazine (ppb)	3	3	1.4	0.67 - 1.4	No	2009	Runoff from herbicide used on row crops.
Volatile Organic Contaminants							
Total Trihalomethanes (TTHM) (ppb)	N/A	80	51.18	26.88 - 81.62	No	2009	By-product of drinking water chlorination
TTHM results from IDSE Study(ppb)	N/A	N/A	N/A	21.39 - 89.83	No	2009	By-product of drinking water chlorination
Haloacetic Acid (HAA5) (ppb)	N/A	60	18.55	7.09 - 26.60	No	2009	By-product of drinking water chlorination
HAA5 results from IDSE Study (ppb)	N/A	N/A	N/A	6.21 - 25.10	No	2009	By-product of drinking water chlorination