WATERFORD TOWNSHIP 2004 WATER QUALITY REPORT

Waterford Township Department of Public Works (DPW) presents its' seventh annual Drinking Water Quality Report! The Environmental Protection Agency (EPA) and the Michigan Department of Environmental Quality (MDEQ) require us to report to you the quality of your drinking water. While a statutory requirement, Waterford Township considers it a priority to inform you, our customers, about the safety of the water you drink and the importance of protecting our water supply. We are excited and proud to bring this report to you and feel that the information we are providing is important. **Waterford Township Department of Public Works is also very pleased to announce that there was no treatment or monitoring violations for Operational Year 2004.** If you have any questions or desire more information about this report or any other subject related to your water quality, please contact Tom Coburn (Water and Sewer Division Superintendent), Phone: 248-674-2278 Fax: 248-674-8658, Email: jcoburn@twp.waterford.mi.us 5240 Civic Center Drive, Waterford, MI 48329-3715.

Where does my drinking water come from?

Waterford Township's water supply is obtained from fifteen (15) wells located at twelve (12) different locations throughout the Township. Eleven (11) of the well sites contain a Water Treatment Plant that performs a variety of treatment processes including iron and manganese removal. Additional chemicals are also added to disinfect the water and to control other contaminants such as lead and copper.

Why are there contaminants in my drinking water?

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 (800-426-4791).

Around the country sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. The Waterford Twp. system is pumped exclusively from wells that are not under the influence of surface water. 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:

- ✓ **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.
- ✓ **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.

In order to ensure that 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 (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Do I need 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 infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline (800-426-4791).

The Water Quality Data Table on the last page of this report lists all of the drinking water contaminants that were detected during the calendar year of this report. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk.

What contaminants are in my water?

The following is a list of some common contaminants and their associated health effects when the Maximum Contaminant Level (MCL) level is exceeded. If a particular MCL, or Action Level (AL), is exceeded, additional treatment or other action may be required. However, Waterford Township's water falls below the MCL's or AL's for these and all other parameters monitored.

- ✓ **Copper** is an essential nutrient, but some people who drink water-containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water-containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

- ✓ Some people who drink water containing **fluoride** in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth. Waterford Twp. does not add fluoride to its finished water. However, fluoride does occur naturally in ground water. Please refer to the data table on the last page for the levels of fluoride observed in 2004.

- ✓ Infants and young children are typically more vulnerable to **lead** in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking water Hotline (800-426-4791).

- ✓ Infants and children who drink water-containing **lead** in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Waterford Township's water for Operational Year 2002 was below the (AL) Action Level for lead. Please refer to the table on the last page for the specific results for lead in Operational Year 2002. In 2004 Waterford was not required to test for lead or copper. The next lead/copper test will be conducted during 2005.

  Total Trihalomethanes (TTHMs) and **Haloacetic Acids** (HAA5) are a group of chemicals that are formed along with other disinfection by-products when chlorine or other disinfectants used to control microbial contaminants in drinking water react with naturally occurring organic and inorganic matter in water. The trihalomethanes are chloroform, bromodichloromethane, dibromochloromethane, and bromoform. The haloacetoic acids are monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoaacetic acid, and dibromoacetic acid. Under the Information Collection Rule (ICR), we are required to monitor contaminants in this category.
- ✓ For more information about this rule view the EPA website at: http://www.epa.gov/

Three (3) contaminants – **Arsenic**, **Nitrate**, and **Chloride** are of particular concern in some groundwater supplies throughout Oakland County. In Waterford Township's case, none of these contaminants exceed any MCL's or AL's. The DPW, however, continues testing for these contaminants at more frequent intervals than required to ensure our water quality.

Should I be concerned about Arsenic, Nitrate and Chloride in the water?

- ✓ **Arsenic**, while used in the manufacturing of pesticides, metal products, pigments and dyes, and medicine, is a naturally occurring element in our environment and therefore, can be found in groundwater. While a known carcinogen, the health effects of arsenic depend on the amount consumed. The year 2003 MCL for arsenic was 50 ppb and Operational Year 2003 the Township was not scheduled to test for Arsenic. 2001 tests indicate that arsenic was not detected at or above the MCL limit in Waterford Township's Water System. In Operational Year 2006, the MCL for arsenic is scheduled to be lowered to 10 ppb. The Township does not expect any problems with meeting the more stringent criteria. Please visit our web page for further information regarding the Township's arsenic levels at:
- ✓ http://www.twp.waterford.mi.us/publicworks/ARSENIC.htm

  While your drinking water meets EPA standards for arsenic, it does contain low levels of arsenic. The EPA standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. The EPA continues to research on the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

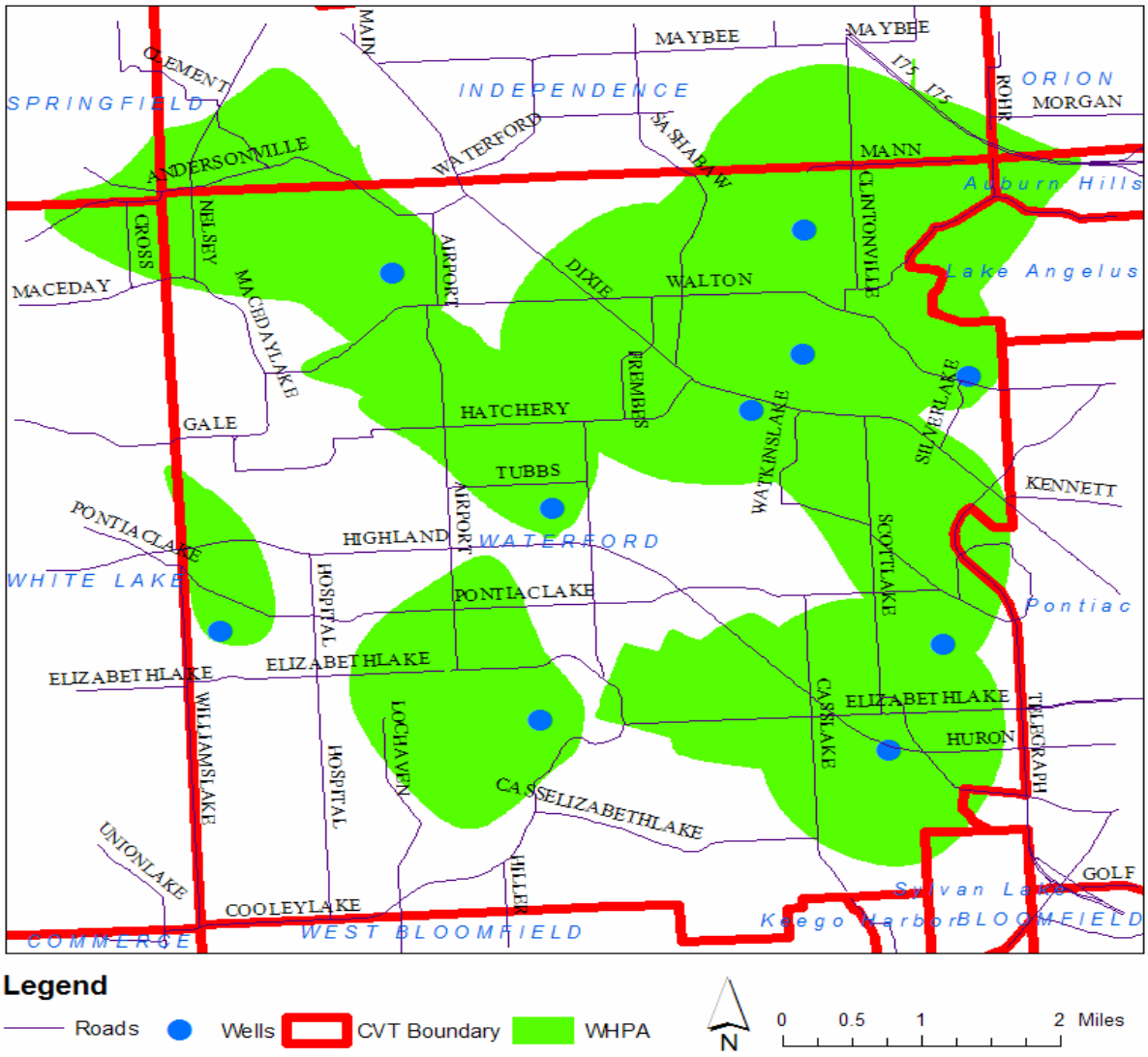
- ✓ **Nitrate** is formed when oxygen in the air or dissolved in water combines with nitrogen. While nitrate is naturally occurring, concentrations can rise from septic tank leachate and fertilizers, which are rich in nitrogen. Infants below the age of six months who drink water-containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome. The MCL for nitrate is 10 ppm and Waterford's water was not detected to have any nitrates for the samples taken in Operational Year 2004.

Water Plant Security: Waterford Township's Water Treatment Plants are treated as secure limited access facilities. All the plants have locked steel doors, no windows, and are surrounded by fences with barbed wire. Additional measures include a number of different technologically based monitoring devices that alert key personnel of abnormal conditions 24 hours per day.

Water Monitoring Issues: During Operational Year 2004, the DPW was not required to give public notification for any detection's and/or violations.

What is being done to protect our water supply?

Wellhead Protection Program: Waterford Township is making every effort to protect the groundwater source (underground aquifers) of our drinking water supply. The township voluntarily participates in the MDEQ Wellhead Protection Program. The use of certain household hazardous chemicals (like paints, solvents, gasoline, etc.) should be closely monitored in order to eliminate the possibility of groundwater contamination. You can help protect our water supply by using chemicals carefully. If you have an unused water well, inform the township to obtain information on how to have it plugged – open holes are easy conduits for chemicals to travel and contaminate our ground water. Please see the attached map to determine if you live in a WHPA. Remember: prevention of ground water contamination is far less expensive than ground water cleanup! For more information see: http://www.michigan.gov/deq



Waterford Township Wellhead Protection Map: Waterford Township DPW currently has ten Michigan Department of Environmental Quality (MDEQ) approved Well Head Protection Area's (WHPA's), which are shown on the map above. These areas define the boundaries of the 10-year zone of capture for a specific wellhead. If there were a contaminant release at the edge of the boundary, it would take approximately 10 years for it to reach the wellhead, if untreated. As a result, this powerful analytical tool allows for the development of an action plan to resolve the problem before the wellhead would become contaminated.

In April 2002, Waterford DPW received approval of its Well Head Protection Plan (WHPP) from the MDEQ. Waterford DPW is in the process of implementing certain components of the plan. Some of the main components include public education and signage around the various Well Head Protection Area's located within Waterford. Look for these signs around our community. The signs are being placed wherever main roads intersect wellhead protection areas.

Abandoned Well Management Program: Waterford Township has also been awarded a grant from the MDEQ for the purpose of locating and properly plugging abandoned wells and has retained DLZ Michigan, Inc. (DLZ), of Lansing to conduct the search and prepare the specifications for proper abandonment of wells within the WHPAs. The Abandoned Well Management Program is currently in its investigation phase, where we are conducting door-to-door surveys of properties in a pilot-study-area to ascertain the approximate number of unused wells and the likelihood of successfully abandoning them.

For more information contact:

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2004 Water Quality Data Table

Per MDEQ and/or EPA monitoring requirements, contaminant-monitoring schedules vary and can exceed calendar years in collection and testing frequency. Unless otherwise noted, the data presented in this table is from testing done in the calendar year 2004.

Contaminants and Testing Frequency	Date Range	MCLG	MCL	Your Water	Sample Range	Typical Source
Inorganic Contaminants						
Fluoride (ppm): Yearly Testing	2004	4	4	0.7	0.1 to 0.7	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Arsenic (ppb): Next Due 2005	2001	N/A	**50	6	1 to 6	Used in Agricultural production. Naturally found in the environment.
Selenium (ppb): Next Due 2006	2001	50	50	5	0 to 5	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharges from mines.
Barium (ppm): Next Due 2006	2001	2	2	.22	0.07 to 0.22	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Radioactive Contaminants						
Combined Radium (pCI/L) – Next Due 2012	2003	0	5	1.23	.42 to 1.23	Erosion of Natural Deposits.
Organic Contaminants						
TTHM [Total Trihalomethethanes] (ppb) (Distribution System): Yearly Testing	2004	NA	80	*30.1	2.5 to 49.0	By-product of drinking water disinfection.
TTHM [Total Trihalomethethanes] (ppb) (Water Plants): Next Due 2005	2003	NA	80	*13.8	0 to 78.3	By-product of drinking water disinfection.
HAA5 [Total Haloacetic Acid] (ppb) (Distribution System): Yearly Testing	2004	NA	60	*6.3	0 to 17.0	By-product of drinking water disinfection.
HAA5 [Total Haloacetic Acid] (ppb) (Water Plants): Yearly Testing	2004	NA	60	*2.0	0 to 2.0	By-product of drinking water disinfection.

2004 Microbial Contaminants - Monthly Monitoring in the Distribution System

Contaminant	DATE	MCLG	MCL	Highest # Detected	Major Sources in Drinking Water
Total Coliform Bacteria: Yearly Testing	2004	0	Presence of Coliform Bacteria <5% of Monthly Samples.	In One Month = 1	Naturally Present in the Environment. No Violation in 2004 for Waterford's Water.
E. Coli or Fecal Coliform Bacteria: Yearly Testing	2004	0	A routine sample and repeat sample are total coliform positive, and one is also fecal or E. coli positive.	In One Year = 0	Human waste and animal fecal waste. No Violation in 2004 for Waterford's Water.

Contaminants (Special Monitoring)	Date	MCLG	MCL	Your Water	Sample Range	Typical Source
Sodium (ppm): Yearly Testing	2004	NR	NR	*41.1	21 to 59	Erosion of natural deposits. *see the definition below for (NR) Not Regulated contaminants.

Copper/Lead		MCLG	AL	90th Percentile	# of sites above action level	Major Sources in Drinking Water
Copper (ppm) – Due Next 2005	2002	1.3	1.3	*0.527	0 out of 30 sites = 0.0%	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb) – Due Next 2005	2002	0	15	*0	2 out of 30 sites = 6.0%	Corrosion of household plumbing systems; Erosion of natural deposits

Terms and Abbreviations/Units Descriptions as used above:

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.

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.

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

* Indicates an annual average calculation.
** Beginning in Operational Year 2006 the arsenic MCL level is scheduled to be lowered to 10 (ppb).

90th Percentile: 90% of the homes tested have lead/copper levels at or below the given 90th percentile value.

pCi/L: picocuries per liter

ppm: parts per million, or milligrams per liter (mg/l)
ppb: parts per billion, or micrograms per liter (µg/l)
% of monthly positive samples: % of samples taken monthly that were positive

NA: **N**ot **A**pplicable
ND: Contaminant **N**ot **D**etected
NR: **N**ot **R**egulated Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps the EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.
Your Water Column: Highest Single Value Obtained during the Reporting Period, Unless notated by a (*), which indicates an Annual Average.
Sample Range Column: Lowest Value to Highest Value Obtained.