



University of  
Connecticut

# 2007 Water Quality Report

Main Campus, Storrs (Public Water System ID No. CT 0780021)

Depot Campus, Mansfield (Public Water System ID No. CT 0780011)

## Message to the Consumer

The University is pleased to provide you with the 2007 Water Quality Report of the Main Campus Water System in Storrs and the Depot Campus Water System in Mansfield. This report includes a brief overview of your drinking water supply and the results of water quality tests conducted during 2007. This "Consumer Confidence Report" is issued to provide consumers with water quality information on an annual basis as required by the Federal Safe Drinking Water Act. We encourage you to read this report to gain a better understanding of your water supply.

In 2007, the University continued to contract with New England Water Utilities Services, Inc. (NEWUS) to provide professional management, daily and after-hours emergency operation and maintenance of the University's water systems. Under this contract, NEWUS is responsible for all water quality sample collections and reports, advising on all current and proposed future water system regulatory requirements, preparation of annual recommendations for major maintenance and capital improvement needs, measuring on-campus and off-campus water usage, cross connection inspections and backflow device testing and recommendations concerning customer service matters.

New in 2007 was the transfer of meter reading, billing and customer response responsibilities from the University to NEWUS. As part of this transition, our billing frequency increased from once every six months to once each quarter to improve budgeting and tracking of billing/payments by both the University and its customers. As part of this changeover, University water and sewer customers can now pay their bills online from their checking account using the e-pay function found on NEWUS's Web site at [www.ctwater.com](http://www.ctwater.com)

New water system operating procedures were in place in 2007 to carry out the recommendations of the previously completed Fenton River Study, and to help us successfully respond to the drought conditions that occurred in the summer and fall of 2007. With these new operating procedures in place and with the implementation of comprehensive water conservation measures, we were able to maintain proper flows in our water systems while avoiding any adverse effects in the Fenton River. The University is undertaking a similar study of the Willimantic River where our water system's other well field is located.

In September of 2005 the University had committed to state agencies, including the Department of Environmental Protection and the Department of Public Health, to undertake actions in three specific areas:

1. restorative measures for the Fenton River
2. water supply assessment and improvements, and
3. additional conservation measures.

In a recent letter to President Hogan from the Commissioners of Environmental Protection and Public Health, they stated that,

"The efforts that the University has taken to address its commitments have been exemplary... From a water supply management prospective, the University is to be commended for promptly engaging a professional operator, implementing system improvements necessary to achieve operational flexibility including system automation, installing sub-metering, addressing identified leaks, and updating the University's Drought Response Plan. The recently completed Water Conservation Opportunities is the culmination of many actions aimed at water conservation and we look forward to implementation of the recommendations within the report."

The University remains committed to providing its students, faculty, staff, visitors, area residents, businesses and municipal facilities with the highest quality drinking water possible. For more information concerning drinking water quality provided by the Main Campus or the Depot Campus systems, call weekdays between 8 a.m. and 5 p.m. to the University's Department of Environmental Health and Safety at 860-486-3613, or New England Water Utility Services, Inc.'s project manager at 860-486-1081, or visit our Web site at [www.facilities.uconn.edu](http://www.facilities.uconn.edu).

Sincerely,

*Thomas Q. Callahan*  
Associate Vice President for  
Administration & Operations

## 2007 Regulatory Results

We are pleased to report that there were no water quality or monitoring and reporting violations in 2007 in either the Main Campus or Depot Campus water systems.

### Regulatory Oversight

To ensure that tap water is safe to drink, the Federal Environmental Protection Agency (EPA) and the State of Connecticut Department of Public Health (DPH) established regulations that limit the amount of certain contaminants in the water provided by public water systems. Water quality testing is an ongoing process, and the frequency of testing for each parameter varies as prescribed by these drinking water regulations. Due to testing schedules, not all of these tests were required during 2007 but the most recent test data are shown in the table located on page 3. Samples from the University's water systems are tested regularly at state-certified laboratories to ensure compliance with state and federal water quality standards. Water samples are collected for water quality analyses from our wells, from entry points into our systems and from sample locations within our distribution system.

### Source Protection



The University is committed to protecting not only its wells and well fields, but also the Fenton and Willimantic Rivers, which are invaluable water resources. All significant construction projects undertaken by the University undergo a series of environmental reviews pursuant to the Connecticut

Environmental Policy Act (CEPA). This process, administered through the State Office of Policy and Management, provides numerous state agencies, the town of Mansfield organizations, environmental groups, and interested citizens with an opportunity to review and comment on a project relative to its potential environmental impact. The University also cooperates with Windham Water Works regarding watershed inspections on the Main Campus. This interaction is designed to protect the Fenton River well field and the Fenton River, as well as the downstream Willimantic Reservoir.

The University utilizes its aquifer mapping information to better understand the areas of groundwater recharge. This hydraulic evaluation, required by the Department of Environmental Protection (DEP), delineates the critical areas of direct recharge that must be protected. The Connecticut Department of Public Health (DPH), in conjunction with the DEP, has on record the Source Water Assessment Program (SWAP) report on the Fenton River and Willimantic River wells. This report evaluates potential sources of contamination near our wells. The University's well fields have an Overall Susceptibility Rating of "LOW," the best possible rating. To ensure continued source protection however, the University will remain vigilant in protecting all of its water supply sources in the years to come. For more information regarding the SWAP report, visit the DPH's Web site at <http://www.ct.gov/dph/cwp/view.asp?a=3139&q=387342>.



## Water Quality

As water travels over the land surface and/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 human activity, including:



- Viruses and bacteria, which may come from septic systems, livestock and wildlife.
- Salts and metals, which can be natural or may result from stormwater runoff and farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff or lawn care.
- Organic chemicals, which originate from industrial processes, gas stations, stormwater runoff and septic systems.
- Radioactive substances that can be naturally occurring.

To ensure safe tap water, EPA prescribes limits on these substances in water provided by public water systems. The presence of these contaminants does not mean that there is a health risk. The University complies with EPA and DPH water quality requirements to ensure the quality of the water delivered to consumers. The test results are reflected in the table on page 3. There were no water quality violations in 2007.

### System Description

The University owns and operates the Main Campus Water System at Storrs and the Depot Campus Water System in Mansfield. Although the two systems are interconnected, the quality of water within each system can vary. The Main Campus receives water from gravel-packed wells located in the Fenton River and Willimantic River well fields. The Depot Campus receives water only from the Willimantic River well field. Our wells do not pump directly from the Fenton and Willimantic Rivers; rather, the wells are located near the rivers and pump groundwater from extensive underground aquifers. As groundwater moves very slowly through the fine sands that make up these aquifers, the water is naturally filtered. The result is water of excellent chemical, physical, and bacteriological quality pumped from each well field. The only water treatment added is sodium hydroxide for pH adjustment and corrosion control, and chlorine for disinfection. The University continues to have an ample supply of high quality drinking water to meet the needs of its on-campus and off-campus users. In addition, it has over 7,500,000 gallons of water storage capacity to meet all domestic, process, and fire protection needs. Large booster pumps help maintain adequate system pressures, and emergency generator power ensures continued operation during electric power outages.

## Water Quality Testing

The table below lists the results of water quality monitoring conducted in 2007. However, DPH allows us to monitor for some contaminants less than once per year because the concentration of the contaminants are not expected to vary much from year to year. Because of this, some of the data, though representative of the water quality, may be more than one year old. If levels were tested prior to 2006, the year is identified in parentheses. Any contaminant/compound detected in the latest round of testing is included in the table. As required by the EPA and the DPH, the University also periodically tests for "unregulated contaminants." The last required samples were collected in 2002 with all sample results below detection levels. The next required sampling for unregulated contaminants will occur in 2009 and 2010.

Water Quality Test	Main Campus			Depot Campus			Possible Contaminant Source		
	MCL	MCLG	Highest Level Detected	Range of Detections	MCL Exceeded?	Highest Level Detected		Range of Detections	MCL Exceeded?
Copper (ppm)	AL 1.3	AL 1.3	0.067 (2005)	no sample above AL	No	0.12	--	No	Corrosion of household plumbing systems
Lead (ppm)	AL 15	AL 0	5.7 (2005)	no sample above AL	No	9.5	--	No	Corrosion of household plumbing systems
Barium (ppm)	2	2	0.013 (2005)	ND-0.013	No	0.013 (2005)	NA	No	Erosion of natural deposits
Chloride (ppm)	250	NA	20 (2005)	11-20	No	22 (2005)	20-22)	No	Erosion of natural deposits
Fluoride (ppm)	4	4	ND (2005)	--	No	0.21 (2005)	0.21		Erosion of natural deposits
Nitrate (ppm)	10	10	0.88	0.37-0.88	No	0.83	0.83	No	Runoff from fertilizer use
Nitrite (ppm)	1	1	<0.01	<0.01	No	<0.01	<0.01	No	Runoff from fertilizer use
Sodium (ppm)	NL=28	NA	23 (2005)	21-23	No	24 (2005)	22-24	No	Erosion of natural deposits
Turbidity (ntu)	TT (5 ntu)	NA	3.0	ND-3.0	No	2.8	0.21-2.0	No	Soil runoff, pipe sediment, or precipitation of minerals or metals
Total Coliform Bacteria	presence in >5% of mo. samples	0	0	--	No	0	--	No	Naturally present in the environment
Alpha Emitters (pCi/L)	15	0	0.87 (2006)	ND-0.87	No	2.2	ND-2.2	No	Erosion of natural deposits
Combined Radium (pCi/L)	5	0	1.33 (2006)	ND-1.33	No	3.79	ND-3.79	No	Erosion of natural deposits
Uranium pCi/L	30	0	ND (2006)	--	No	ND	N/A	No	Erosion of natural deposits
Chlorine (ppm)	MRDL 4	MRDLG 4	0.6	0.1-0.6	No	0.3	0.2-0.3	No	Water additive used to control microbes
HAA5 (ppb) [Haloacetic acids]	60	NA	ND	--	No	2	ND-2	No	By-product of drinking water disinfection
TTHMs (ppb) [Total Trihalomethanes]	80	0	2.6	ND-2.6	No	5.6	ND-5.6	No	By-product of drinking water disinfection

## DEFINITIONS AND KEY TERMS

**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 allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology. Typically when MCLs are exceeded a violation occurs and public notification is required.

**MCLG (Maximum Contaminant Level Goal):** The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

**MRDL (Maximum Residual Disinfection Level):** The highest level of a disinfectant allowed in drinking water.

**MRDLG (Maximum Residual Disinfection Level Goal):** The level of a drinking water disinfectant below which there is no known or expected risk to health.

**Detected Contaminant:** A detected contaminant is any contaminant measured at or above a **Method Detection Level**. Just because a contaminant is detected does not mean that its MCL is exceeded or that there is a violation.

**n/a:** Not applicable.

**ND:** Not detected.

**NL:** Notification level.

**ppb (parts per billion):** One part per billion = ug/L; the equivalent of 1 penny in \$10,000,000.

**ppm (parts per million):** One part per million = 1 mg/l; the equivalent of 1 penny in \$10,000.

**PCi/L (picocuries per liter):** A measure of radioactivity.

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

**< :** Less than.

## Planning for the Future

In 2006, in conjunction with the town of Mansfield, the University commissioned to the preparation of a Master Plan for the University's water and wastewater systems that will serve as a roadmap for the town and the University for the future of these important utility systems. In 2007, the University selected Milone and MacBroom from a number of highly qualified consulting firms as part of a competitive bid process to prepare that Master Plan.

The Plan was completed in 2007 and provided a detailed study of the alternatives for the short-term and long-term operation, maintenance and management of these systems. It identified a number of recommendations for these systems which were reviewed and revised based on actual results documented during the drought of 2007.

## Stage 2 Disinfectants and Disinfectants Byproducts Rule (DBPR)

The Environmental Protection Agency's Stage 2 Disinfectants and Disinfectants Byproducts Rule (DBPR) requires all water systems to evaluate for the potential for producing elevated levels of certain "disinfectant byproducts" that have potential adverse health effects. These chemical compounds can be produced by the reaction of disinfecting chemicals with naturally occurring chemical compounds found in the water. Water quality test results over eight consecutive quarterly sampling periods showed that none of the samples contained levels of disinfection byproducts in excess of allowable levels. Because of these favorable sample results both the Depot and Main Campus water systems have been designated in compliance with the DBPR.

## Educational Information

Consumer Confidence Reports are required to contain public health information for certain contaminants and compounds, even if the levels detected were less than the Maximum Contaminant Levels established for those parameters. The presence of 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 EPA's Safe Drinking Water Hotline (800-426-4791).

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 for infections. These people should seek advice about drinking water from their health care providers. EPA and the Federal Center for Disease Control guidelines on reducing the risk of infection by Cryptosporidium and other microbial contaminants are available from EPA's Safe Drinking Water Hotline (800-426-4791).

**CRYPTOSPORIDIUM.** Cryptosporidium is a microbial parasite found in surface waters throughout the U.S. Since the University uses ground water (wells) rather than surface water (reservoirs), the University is not required to test for Cryptosporidium.

**COPPER & LEAD.** The University currently meets regulatory requirements for both lead and copper. Lead and copper were tested in 2007 (Depot Campus) and 2005 (Main Campus). None of the samples collected exceeded the Action Levels for lead or copper. Nonetheless, the University believes it is important to provide its customers with the following information regarding lead and copper:

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 University's Main Campus and Depot Campus water systems 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 water 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 is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Similarly, elevated copper levels can also have health impacts. Copper is an essential nutrient, but like lead, its levels can vary from location to location. Some people who drink water containing copper in excess of the Action Level over a relatively short period of time could experience gastrointestinal distress and may also suffer liver or kidney damage. People with Wilson's disease should consult their personal physician. If you are concerned about elevated copper levels, you may wish to have your water tested. Running your tap for 30 seconds to 2 minutes before using for drinking or cooking will significantly reduce copper levels in the water.

Lead and copper levels will be tested again in 2008 (Main Campus) and 2010 (Depot Campus).



## 2007 Water System Improvement Projects

The University completed a number of important water system improvements in 2007, including:

- Replaced an underground caustic storage tank at the Fenton Wellfield Treatment Station with an above ground facility that is more easily monitored for structural integrity.
- Redeveloped Fenton Well D and replaced the pump and motor for more reliable operation with reduced impact on Fenton River flow levels.
- Provided automated controls for operation of the Fenton Wellfield and installed a new 125 hp motor with variable speed capability to enable more flexible water production from the wellfield.
- Installed 1,200 feet of new 8" pipe on Depot Road for service to Reynolds Regional High School.
- Installed a new 6" pipe that serves the University's Central Utility Plant to replace an old pipe which had a history of repeated leaks.
- Installed a new tank level transmitter at Towers Tanks for improved operational control of the water levels in the tanks.
- Installed new meters equipped with radio reading capability at 33 of the 51 off-campus metered water customers for improved meter and billing accuracy.
- Phase One of the plan to meter all on-campus facilities was completed. This phase concentrated on the larger water-using facilities, including Residential Life (dormitories), Athletics and the Co-Generation Plant.
- Completed a system-wide leak detection survey with repair of all identified leaks.
- Completed a water conservation study of University facilities with Water Management, Inc., a specialist water conservation consultant.

## Water Conservation

Three straight years of declining water consumption highlight the continuing and successful efforts undertaken by the University to improve its water conservation efforts. Average Day Demands for the water systems have decreased from 1.5 million gallons per day (mgd) in 2005 to 1.4 mgd in 2006 and to 1.3 mgd in 2007. These reductions have occurred despite continuing growth and development over the years.

These reductions did not happen by accident but were the result of deliberate actions taken to conserve water. Over the years, the University has made considerable investments in repairing leaks, installing water-saving devices and more efficient water chillers, replacing old water mains with new ones and retrofitting/replacing equipment with more efficient methods. Our more recent efforts included: comprehensive leak detection surveys with repair of all detected leaks completed in 2005 and 2007; water system operation changes made in 2005 and 2006 to maximize water efficiencies, thereby reducing wasted water; a comprehensive water conservation study of University buildings completed in 2007; and special water conservation efforts taken in 2007 in response to drought conditions in accordance to our "Water Conservation Plan."

A fundamental tool in the water conservation effort is the provision and use of accurate water meters to measure all water uses from the system. Specific metering improvements were completed in 2007 as part of the University's four-year plan to complete the metering of all on-campus and off-campus buildings.



## WHY SHOULD YOU CONSERVE WATER?

Effective water conservation is the combination of individual actions. Conservation will:

- Reduce potential impacts to the environment by reducing groundwater withdrawals
- Reduce the need for additional sources of water
- Ensure that we all have a safe and adequate supply of water for years to come

## Conservation Tips

Things you can do to help the University conserve water:

### In the workplace (on & off campus):

- Turn off faucets when not in use.
- Install water-efficient fixtures and equipment.
- In UConn buildings, promptly report leaks to Facilities Operations at 486-3113.

### In your personal residence (on & off campus):

- Repair leaks. In UConn dorms, promptly report leaks to your Resident Advisor. In other campus buildings, report leaks to Facilities Operations at 486-3113.
- Install water-saving shower heads and toilets.
- Take shorter showers.
- Turn off faucets and showers when not in use.
- Wash full loads in washing machines/dishwashers.
- Limit running water in food preparation.
- Limit outdoor watering to early mornings or evenings and do not water on windy days.
- Mulch around plants to reduce evaporation.
- Limit running water time when washing a car, or use a car wash.

# 2007 Annual Water Quality Report



*Proudly Presented By:*



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