

# Manchester Water Department

125 Spring Street

Manchester, Connecticut

PWS ID: CT0770021

## 2010 Water Quality Report



### *Your Water Quality*

The Manchester Water Department is pleased to provide our customers with this annual report on the drinking water supplied to the residents of Manchester and our customers in portions of Glastonbury, Vernon and South Windsor. The information contained in this brochure is compiled from data collected during 2010 and explains where your water comes from, what tests were performed to insure the safety of your water and where you can get more information about your water supply. We hope you will find this information both interesting and helpful. *We want to keep you informed about the quality of your drinking water.*

## ***Sources of Drinking Water***

Manchester's water supply includes both surface water (reservoirs) and groundwater (wells). We have seven surface water reservoirs and ten active wells. Globe Hollow, Porter, Lydall #1 and #2 and Howard reservoirs are located in Manchester; Risley reservoir is located in Vernon and Buckingham reservoir is located in Glastonbury. These reservoirs supply the majority of water to our customers. The groundwater sources augment the surface water supply and are comprised of ten wells which are located throughout Manchester on New State Road, Love Lane, Parker Street, Progress Drive, Charter Oak Street and Fern Street.

The water from the reservoirs is piped to our water treatment plant on Spring Street, where the water is processed before it is sent into the water distribution system. The treatment process is comprised of flocculation, sedimentation, filtration to remove impurities and disinfection to kill microbes that can cause illness. We raise the pH with lime and add zinc phosphate to prevent corrosion of plumbing. Fluoride is added to help prevent cavities. The groundwater supplies are naturally purified as they filter through the soil, so little additional treatment is required. Treatment of our groundwater supplies consists of disinfection, fluoridation and corrosion control. The Parker Street and New State Road Wells are also treated to remove low levels of volatile organic chemicals.

## ***The Water Distribution System***

Drinking water travels to your home via a two hundred and forty eight mile network of water mains, three booster pumping stations and ten distribution system storage tanks. Because of this interconnected system, water from more than one source may be delivered to some neighborhoods. The source of water is dependent upon your location in our service area *and* the time of year. Many of our customers experience a seasonal change in the water they receive due to the way we operate our water supply resources. To see where your water comes from, refer to the maps on the following page.

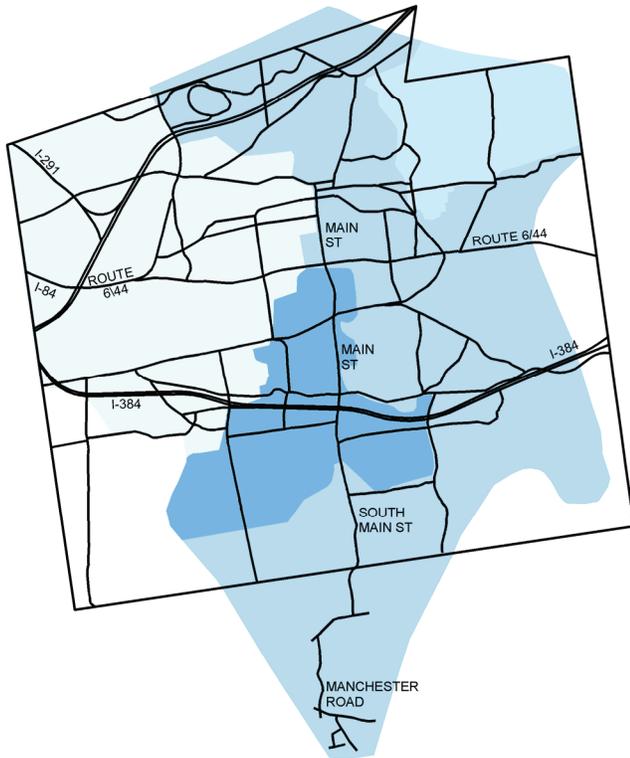
The water department uses both surface and groundwater to meet the increased water demands of summer. During the winter months we normally reduce the use of our wells and pump mainly surface water. The maps indicate the change in sources from winter to summer.

***The Water Department produced a total of 1.97 billion gallons of water in 2010***, or approximately 5.39 million gallons per day. On July 8, 2010 the department supplied 8.40 million gallons of water which was the highest single production day of the year. Overall, fifty one percent of the total water produced was supplied from reservoirs and the remaining forty nine percent was supplied by groundwater sources.

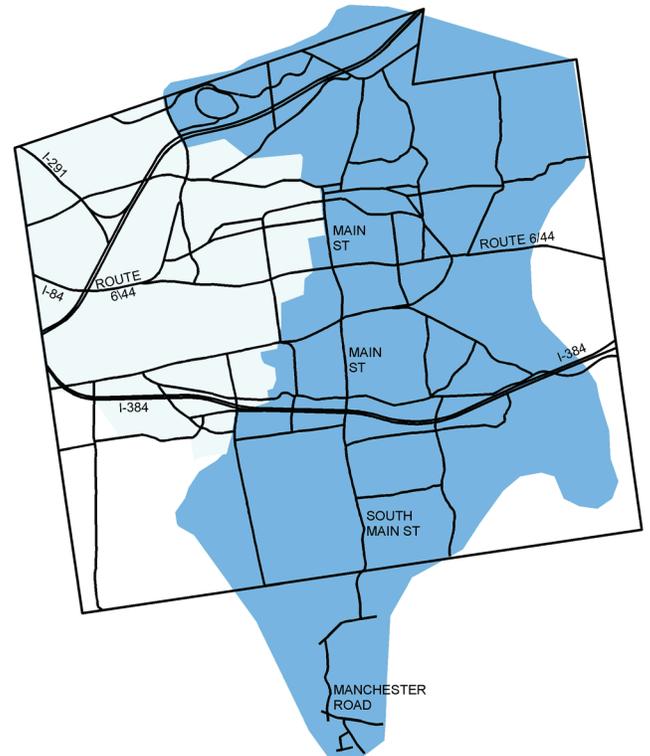
## ***Source Water Assessment Program***

A source assessment of the various water supplies used by the Manchester Water Department was recently completed by the Connecticut Department of Public Health, Drinking Water Division. The assessment reports are intended to provide an understanding of the potential risk of contamination based upon specific risk factors for surface and groundwater sources. Manchester's overall susceptibility to potential sources of contamination was considered to be low for its surface water supplies because more than fifty percent of the watershed is owned by the Town and is preserved as open space. The overall susceptibility to potential sources of contamination for the groundwater supplies was considered to be high because most land around the supplies is not owned by the Town. Some locations have potential for contamination due to the presence of underground fuel storage tanks and septic systems. At this time there are no local aquifer protection regulations in place. An aquifer protection program is currently under review at the state and local level. The program will implement the standards being developed for the state-mandated Level A mapping program. The complete assessment report can be found on the Department of Public Health's website: [www.dph.state.ct.us/BRS/Water/Source\\_Protection/Assessments/Assessments.htm](http://www.dph.state.ct.us/BRS/Water/Source_Protection/Assessments/Assessments.htm).

## Summer Water Supply



## Winter Water Supply



Water supply is surface water from the Globe Hollow Water Treatment Plant

Water supply is a blend of Globe Hollow Water Treatment Plant, Parker Street, and Charter Oak Street Wells

Water supply is a blend of Globe Hollow Water Treatment Plant, Parker Street and Progress Drive Wells

Water supply is groundwater from the New State Road and/or Love Lane Wells

### *The EPA wants you to know that...*

Sources of drinking water (both tap and bottled) include lakes, ponds, reservoirs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in untreated source water include: Biological contaminants, such as viruses and bacteria, which may come from septic systems, agricultural livestock operations, and wildlife; Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban runoff, farming or industry; Pesticides and herbicides, which may come from a variety of sources such as agriculture or residential uses; Organic chemicals, including synthetic and volatile organics, which are by-products of industrial processes and can come from gas stations, urban storm-water runoff and septic systems; Radioactive materials, which can be naturally occurring or the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, the Environmental Protection Agency prescribes regulations which limit the amount of certain contaminants that are allowed in water provided by public water systems. The Food and Drug Agency establishes limits of contaminants in bottled water. All 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's Safe Drinking Water Hotline at 1-800-426-4791.**

*The Environmental Protection Agency requires that we test Manchester's drinking water for over 100 contaminants. We only found a few which are listed in this report. All of the levels are lower than the EPA's maximum allowable levels. The water we supply to you meets all State and Federal water quality standards.*

## Water Quality Monitoring Program

Manchester's water is routinely monitored for microorganisms, organic chemicals, inorganic chemicals and pesticides. The following tables contain important information about our water quality. The tables represent data from 2010 and only include substances that were found in the water. Not all substances are tested every year. In these cases, only the most recent test results are included, along with the date tested. The tables do not include all the substances that are monitored each year if they were not found in our water supply. The results of these tests are reported to the State of Connecticut Department of Health. **In 2010 the Water Department performed approximately 26,600 analyses on over 4,500 water samples and was in compliance with all state and federal drinking water standards.** The tables are color-coded to correspond to the areas shown on the maps. To read the tables, find your location on the map to determine your water source, then refer to the appropriate column in the table to find the water quality results for your area.

Potential Sources of Contaminants	
Contaminant	How it gets in the water
Asbestos	Decay of asbestos cement water mains
Barium	Erosion of natural deposits
Chloride	Natural deposits, runoff from road salting
Fluoride	Water additive which reduces tooth decay and promotes strong teeth
Gross Alpha Emitters	Erosion of natural deposits
Nitrate as N	Erosion of natural deposits; runoff from fertilizer use or septic systems
Sodium	Runoff from road salting, natural deposits
Tetrachloroethylene	Discharge from factories and dry cleaners.
1,1,1-Trichloroethane	Discharge from metal degreasing sites
Trichloroethylene	Discharge from metal degreasing sites
1,1-Dichloroethylene	Discharge from industrial chemical factories
Total Organic Carbon	Naturally present in the environment
Turbidity	Soil runoff

### Definitions of terms and abbreviations used in this report:

**MCL** = Maximum Contaminant Level - The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG as feasible using the best available treatment technology.

**MCLG** = Maximum Contaminant Level Goal - The level of a contaminant in drinking water below which there is no known or expected risk to health.

**MFL** = Million Fibers per Liter longer than ten micrometers

**MRDL** = Maximum Residual Disinfectant Level - 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.

**MRDLG** = Maximum Residual Disinfectant Level Goal - The level of a 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.

**TT** = Treatment Technique - A required process intended to reduce the level of a contaminant in drinking water.

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

**NL** = Notification Level - The level of a contaminant that if exceeded requires public notification by a public water system to its customers.

**ppm** = Parts per million (for comparison, 1 cent in \$10,000)

**ppb** = Parts per billion (for comparison, 1 cent in \$10,000,000)

**NTU** = Nephelometric turbidity units, used to measure the clarity of water and evaluate the treatment process.

**pCi/L** = Picocuries per liter, a measure of radioactivity.

**ND** = Not detected

**NA** = Not applicable for the sample site indicated.

## Regulated Contaminants - Average Level and Range Detected in 2010

The following were present at levels below State and Federal allowable limits.

Contaminant	MCLG	MCL	Units	Globe Hollow Water Treatment Plant	Blend of Globe Hollow, Parker St. and Charter Oak Wells	Blend of Globe Hollow, Parker St. and Progress Drive Wells	New State Road and Love Lane Wells	Meets EPA Drinking Water Standard?
Barium	2	2	ppm	0.03 NA	0.18 Range 0.03-0.36	0.19 Range 0.03-0.36	0.23 Range 0.21-0.24	YES
Chloride	250	250	ppm	31 Range 24-41	70 Range 24-119	57 Range 24-119	123 Range 106-170	YES
Fluoride	4	4	ppm	0.97 Range 0.54-1.7	0.97 Range 0.10-1.7	0.98 Range 0.10-1.7	0.96 Range 0.10-1.9	YES
Gross Alpha Emitters	0	15pCi/L	PCi/L	ND	ND	ND	ND Range 0-4.5 Love Lane Only	YES
Nitrate as N	10	10	ppm	0.13 Range 0.02-0.26	1.4 Range 0.02-3.7	1.3 Range 0.02-3.6	3.4 Range 0.58-4.1	YES
Sodium	None	NL=28	ppm	14 NA	45* Range 14-92	38* Range 14-92	49* Range 40-59	YES
Tetrachloroethylene	0	5	ppb	ND	ND	ND	ND	YES
1,1,1 Trichloroethane	200	200	ppb	ND	ND	ND Range ND-1.4	ND	YES
Trichloroethylene	0	5	ppb	ND	ND	ND Range ND-3.0	ND	YES
1,1 Dichloroethylene	7	7	ppb	ND	ND	ND Range ND-1.5	ND	YES
Turbidity Average level for area	None	TT=5	NTU	0.21 Range 0.07-0.98	0.14 Range 0.05-0.98	0.13 Range 0.05-0.98	0.09 Range 0.06-0.23	YES
	None	TT= 95% of samples must be <0.3 NTU	NTU	0.25 100% <0.3	NA	NA	NA	YES
Filter Plant highest single value and % <0.3 NTU								
Total Organic Carbon	None	TT=Ratio ≥ 1.0	-	1.4 Range 1.0-1.9	NA	NA	NA	YES

### \*Sodium Notice:

Customers in this area of Manchester receive water with a sodium concentration above the State's sodium notification level of 28 parts per million (ppm). If you have been placed on a sodium restricted diet, please inform your physician of the sodium level in your area of Manchester. The average dietary intake of sodium in the United States is 4000 to 6000 parts per million each day. Considering the large amounts of sodium from other sources, the relatively small additional burden from the water supply will not affect most healthy individuals.

**Information on *Cryptosporidium*:** *Cryptosporidium* is a microscopic organism commonly found in the environment. *Cryptosporidium* can contaminate surface waters, including drinking water sources, via runoff from the watershed. Ingesting only a small amount of *Cryptosporidium* in contaminated water can cause Cryptosporidiosis, a gastrointestinal illness that typically lasts 10 to 14 days.

The Manchester Water Department has recently completed a two year monitoring program for *Cryptosporidium*. Samples of untreated source water were collected monthly from April 2004 to March 2006 to comply with EPA's Long Term 2 Enhanced Surface Water Treatment Rule (LT2). *Cryptosporidium* was detected in one sample of the twenty four tested indicating compliance with the treatment requirements of the LT2 rule.

**Regulated Contaminants: System-wide testing**

<b>Contaminant</b>	<b>MCLG</b>	<b>MCL</b>	<b>Level Detected</b>	<b>Major Sources in Drinking Water</b>	<b>Meets EPA Drinking Water Standard?</b>
<b>Asbestos</b> (last tested 2002)	None	7 MFL	6.3 Range ND-6.3	Decay of asbestos cement water mains. The decaying water main was replaced in 2004.	YES
<b>Chlorine</b>	4 ppm (MRDLG)	4 ppm (MRDL)	0.70 Range 0.01-1.4	Water additive used to control microbes.	YES
<b>Total Coliform Bacteria</b>	0	Coliform bacteria not present in more than 5 % of monthly samples	None Detected	Naturally present in the environment.	YES
<b>Total Trihalomethanes</b>	0	80 ppb	27 Range 3-60	Byproduct of drinking water disinfection	YES
<b>Haloacetic Acids</b>	0	60 ppb	14 Range 0-30	Byproduct of drinking water disinfection	YES
<b>Lead</b> (last tested 2008)	0 ppb	AL = 15 ppb	1 ppb (0 samples above AL)	Corrosion of household plumbing systems; erosion of natural deposits.	YES
<b>Copper</b> (last tested 2008)	1.3 ppm	AL = 1.3 ppm	0.19 ppm (0 samples above AL)	Corrosion of household plumbing systems; erosion of natural deposits.	YES

**Information on Lead in Drinking Water:** 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. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. 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 (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

**Information on Copper in Drinking Water:** 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 may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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/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 at 1-800-426-4791.*

If you have questions about this report or your water supply, contact us directly at (860) 647-3115. If you wish to participate in decisions that may affect the quality of the water, the Board of Directors meets at Lincoln Center on the first Tuesday of each month. Contact the Mayor's office at 647-3123 for times and dates. For additional information, visit our website at <http://www.townofmanchester.org/water>

Our water system has sampled for a **new** list of unregulated contaminants (UCMR2). Unregulated contaminants are those that don't yet have a drinking water standard set by EPA. The purpose of monitoring for these contaminants is to help EPA determine whether the contaminants should have a standard. We did not detect any of the compounds on this list. Results can be viewed by contacting the Manchester Water Department at (860) 647-3115.

### ***Unregulated Contaminants: Average level and range detected in 2010***

<b>Contaminant</b>	<b>MCL</b>	<b>Units</b>	<b>Globe Hollow Water Treatment Plant</b>	<b>Blend of Globe Hollow, Parker St. and Charter Oak Wells</b>	<b>Blend of Globe Hollow, Parker St. and Progress Drive Wells</b>	<b>New State Road and Love Lane Wells</b>	<b>Major Sources in Drinking Water</b>
<b>Sulfate</b>	Not Regulated	ppm	27 Range 11-39	18 Range 10-39	23 Range 11-39	18 Range 12-26	Natural deposits
<b>Bromodichloro methane</b>	Not Regulated	ppb	3.8 NA	1.0 Range ND-3.8	1.3 Range ND-3.8	ND	Byproduct of drinking water disinfection
<b>Chloroform</b>	Not Regulated	ppb	26 NA	7.1 Range ND-26	9.3 Range ND-26	0.5 Range ND-1.0	Byproduct of drinking water disinfection
<b>Chlorodibromo methane</b>	Not Regulated	ppb	ND	ND	ND	ND	Byproduct of drinking water disinfection
<b>Dieldrin</b>	Not Regulated	ppb	NA	ND Range ND-0.05 Parker Street Only	ND Range ND-0.05 Parker St. Only	ND Range ND-0.02 Love Lane Only	Run-off from pesticide use
<b>Bromoform</b>	Not Regulated	ppb	ND	ND	ND	ND Range ND-0.6	Byproduct of drinking water disinfection

## **Q + A**

### **How Does Connecticut Law Protect Our Drinking Water?**

- *Connecticut is one of only two states in the nation that prohibits discharge of potential disease carrying wastewaters into public drinking water supply sources.*
- *Filtration and disinfection of all surface water supplies is mandatory.*
- *Land areas (watersheds) that drain into public water sources must be inspected annually for sources of pollution.*
- *State and local regulations govern land use and development on watershed lands.*
- *Strict regulations govern the sale and use of water company owned lands which are critical to the protection of public water supply resources.*
- *The Aquifer Protection Act requires regulation of land use in critical areas around public drinking water supply wells.*
- *Operator certification is required for water treatment personnel to ensure the effective operation of water treatment facilities.*

Postal Customer  
Manchester, CT

**Information about Radon:** Radon is a colorless, tasteless, naturally occurring radioactive gas which may be present in rock, soil, groundwater and air. Radon normally escapes from the ground in small concentrations into the atmosphere, where it dissipates harmlessly. Elevated concentrations of radon, however, can exist if this gas is trapped, for example in our homes or businesses. Radon can enter the home through cracks and openings in foundations. Some radon can also enter homes through drinking water supplies during showering, cooking and other water activities.

Long-term exposure to high levels of radon in air may lead to the development of lung cancer. The EPA has set an Action Level of 4 picocuries per liter (pCi/L, a measure of radioactivity) for radon in air. Studies have shown that approximately 10,000 pCi/L of radon in water will normally produce a concentration of about 1 pCi/L in air. In most cases radon entering the home through tap water is a small source of all the radon in indoor air and therefore constitutes a low risk of exposure. Although the EPA has not yet set a standard for radon in water, the Water Department has performed voluntary monitoring for radon in its groundwater supplies. The radon levels in 1999 ranged from 37 to 1481 pCi/L. If you are concerned about radon in your home, *test the air*. For more information contact the Connecticut Department of Health at 860-509-7367 or the National Radon Hotline at 1-800-767-7236.

## Water Conservation Tips

*Information Provided by the Environmental Protection Agency*

- \* Repair all leaks. A leaky toilet can waste 200 gallons of water per day. To detect leaks in the toilet, add food coloring to the tank. If the colored water appears in the bowl, the toilet is leaking.
- \* When using a hose, control the flow with an automatic shut-off nozzle.
- \* Water only when necessary. The most effective time is early in the morning; never on windy, rainy or very hot days. Use water efficient, slow soaking irrigation systems. Direct the water onto your plants, not the driveway or sidewalk.
- \* Consider replacing your five-gallon per flush toilet with an efficient 1.6-gallon unit. This will permanently cut your water consumption by 25%. Purchasing a high efficiency washing machine will save over 50% in water and energy use.
- \* Keep drinking water in the refrigerator instead of letting the faucet run until the water is cool.
- \* Operate your dishwasher only when completely full.
- \* Turn off the faucet while brushing your teeth or shaving.
- \* Install low-flow aerators and showerheads.
- \* Use a dishpan for washing and rinsing dishes.
- \* Take shorter showers.