



## Department of Environmental Protection

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### **Question and Answer Guide to TTHM's Exceedance of Cherry Valley & Rochdale Water District Public Water System – Updated January 2012**

Customers of Cherry Valley & Rochdale Water District (“the District”) have been notified for four consecutive quarters (January 2011, April 2011, August 2011 and October 2011) that their drinking water exceeds the drinking water standard for Total Trihalomethanes (TTHMs). This document has been prepared for District users to assist its customers with some common questions about TTHMs, drinking water standards, and the public water system.

#### ***Why are customers receiving public notices from the District?***

All public water systems are required by state and federal law to notify users of any exceedance of any water quality standard and any other noncompliance events affecting their water system. District customers have been receiving public notices for exceedance of Total Trihalomethanes (TTHM) standards. The purpose of the public notice is to keep consumers informed about water quality. Public notices will be issued to customers for each quarter the District exceeds the TTHM standards.

#### ***What are TTHMs?***

TTHMs are a group of chemicals known as disinfection byproducts. They form when chlorine used for disinfection reacts with naturally occurring organic material that is found in District’s source water. They are colorless, and will evaporate out of the water into the air.

Levels of TTHMs generally increase in the summer months due to the warmer temperatures, but can also be affected by seasonal changes in source water quality or by changing amounts of disinfection added. Water systems often can experience temporary increases in TTHMs due to short-term increases in chlorine disinfection. Chlorine disinfection increases can occur when there is a water main break, when water systems are under repair, or when there is a potential microbial (example: bacteria) problem or threat.

All water systems that use chlorine to disinfect the water are required by federal and state law to sample for TTHMs on a regular basis (quarterly, or once every three months) in several locations in the distribution system.

***Why is chlorine added?***

The District adds chlorine to its drinking water system to disinfect it. Disinfection of water supplies is necessary to prevent illness and is a United States Environmental Protection Agency (USEPA) and MassDEP requirement. The practice of disinfection has nearly eliminated most acute waterborne diseases such as dysentery, typhoid fever, and cholera in the United States, though they are still common in some other countries. These microbial diseases would otherwise be a major concern for children and other subgroups such as the elderly, immune compromised and pregnant women because of their greater vulnerabilities.

Since the surface water source used for drinking water is open to the environment, it is vulnerable to contamination by waterborne microorganisms (viruses, bacteria, and protozoa). Disinfection of the water first kills any microorganisms that may be present in the surface water. Then, a small amount of disinfectant is required to be kept in the water as it travels through the pipes in the distribution system to prevent growth of microorganisms, or contamination from an outside source, such as during a water main break.

***Where does the District's drinking water come from?***

The District obtains its water from both surface and groundwater sources. Henshaw Pond, located on Henshaw Street in Leicester, is our active surface water source and the Grindstone Well is our groundwater source. The Grindstone Well has been off-line since last Spring for required maintenance. The water is treated at both facilities.

***Where does the District monitor for TTHM's?***

There is one location within the District that is sampled every quarter for TTHM's, 28 Comins Road, which represents compliance for the entire District.

***What is an MCL and how is compliance with the MCL determined?***

Drinking water standards are set to protect against potential negative health effects from drinking water containing the chemicals. The Maximum Contaminant Level (MCL) in drinking water is set so that the amount consumed does not exceed safe levels. Some MCLs regulate the daily amount consumed (for chemicals that pose an immediate risk), and some regulate the amount averaged over a long period of time (for chemicals that pose a long-term risk). The TTHM MCL is set at a level to balance the immediate risk of bacterial contamination and the long-term risk of health effects such as cancer. The USEPA and MassDEP have set an MCL for TTHMs of 80 parts per billion (ppb) or micrograms per liter (ug/L).

Present federal and state regulations require us to determine the water system's compliance with the TTHM MCL by averaging the concentrations found at all the sampling locations in the entire system over the past year, using a running annual average calculation method. The sampling locations and the number of samples collected in each service area have been reviewed and approved by MassDEP. As of Quarter 4, 2011 the system wide average for TTHMs is 102 ppb. The overall system average has exceeded the 80 ppb MCL since December of 2010.

In 2013, new federal and state regulations will require our system to sample two monitoring locations every 90 days, including the month of warmest water temperature (August - when elevated TTHMs may be at their highest). The average of each sample location is then calculated over the past year, and those individual site averages will be compared to the TTHM MCL to determine whether the system is in compliance.

**What is the TTHM sampling history of the District?**

The quarterly TTHM sampling results since 2009 are (ppb):

Sampling locations	Q1 - 2009	Q2 - 2009	Q3 - 2009	Q4 - 2009	Q1 - 2010	Q2 - 2010	Q3 - 2010	Q4 - 2010	Q1 - 2011	Q2 - 2011	Q3 - 2011	Q4 - 2011
28 Comins Road	55.9	50.8	63.7	64.2	73.4	54.6	116	286.5 44.1	62.2	152	54.8	87.0 79.2 78.4
System Wide Quarterly Average	55.9	50.8	63.7	64.2	73.4	54.6	116	165.3	62.2	152	54.8	81.5
<b>4-Quarter Running Annual Average</b>	<b>62</b>	<b>61</b>	<b>59</b>	<b>59</b>	<b>63</b>	<b>64</b>	<b>77</b>	<b>102</b>	<b>100</b>	<b>124</b>	<b>109</b>	<b>102</b>

The highlighted results indicate a result above the TTHM standard of 80 ppb. Compliance with the MCL is determined by the numbers in the last row of the table, and they represent an average of all samples collected in the District's water system over the past year.

**What are the health risks of TTHMs?**

The information provided below is based on available health studies. Studies of populations that have been exposed to TTHMs suggest a possible connection between long-term TTHM exposure and certain types of cancer (e.g., bladder, colon, and rectal) and developmental (e.g. fetal growth) and reproductive effects (e.g. miscarriages, stillbirths). In general, young children may be more susceptible to the effects from any chemical exposures, such as TTHMs, because their ability to metabolize chemicals is not mature and because their exposures may be greater for their size than in adults. More research is being conducted to better understand the potential risks between TTHM exposures and these diseases. It is important that people be aware of these potential health effects from TTHM exposure.

Cancer risks generally accrue over lifetimes and very long periods of exposure. Cancer risks are normally expressed as lifetime risks as a result of averaging daily exposure levels (associated with the lifetime daily average of ingesting 2 liters of drinking water/day) over a lifetime of 70 years. Based on these studies, and the potential for developmental and reproductive effects from TTHM exposure, women of childbearing age and pregnant women are the group that may be more susceptible to effects from TTHM exposure; however children are always of concern with chemical exposures as noted above. To reduce this risk, this group may wish to act with caution and reduce their exposures by following the recommendations in the next section.

***What can customers do in the interim to reduce exposure to TTHMs?***

If you are concerned about TTHMs and want to reduce your exposure, you can do the following:

1. Use bottled water or
2. Install point-of-use home water treatment systems on delivery lines in the house (faucet mount, pour through pitcher style, and plumbed-in units);

Any filter that is purchased should be certified by National Sanitation Foundation (NSF), Underwriters Laboratories (UL) or the Water Quality Association (WQA) to remove TTHMs (look for the seals on the box). The filters could be a pitcher style or a point of use treatment filter that can be mounted to the faucet, under the sink or on the counter top. These treatment devices are widely available for purchase at house ware or hardware stores. A final option could be a whole house filter. This type of installation would likely require the services of a plumber which would increase the cost. It is important that filters be used and the filters are changed according to manufacturer's instructions.

For information on selecting a water treatment system that's right for you, visit NSF international at [www.nsf.org](http://www.nsf.org) or call their hotline at 1-800-673-8010.

Follow these links below to access water filtration systems certified by NSF to treat for TTHMs:

Go to [www.nsf.org](http://www.nsf.org)

- ✓ Click on 'consumers'
- ✓ Click on 'Water Treatment' (on left)
- ✓ Click on 'Contamination Guide' (on left)
- ✓ Click on 'Trihalomethanes (TTHMs)'
- ✓ Click on 'Filtration'

Here are several other web sites that could be helpful.

[www.nsf.org/certified/dwtu/](http://www.nsf.org/certified/dwtu/)

[www.waterfiltercomparisons.com/water\\_filter\\_comparison.php?d=gp](http://www.waterfiltercomparisons.com/water_filter_comparison.php?d=gp)

[www.waterfiltercomparisons.com/shower\\_filter\\_comparison.php](http://www.waterfiltercomparisons.com/shower_filter_comparison.php)

[www.waterfiltercomparisons.com/whole\\_house\\_filter\\_comparison.php](http://www.waterfiltercomparisons.com/whole_house_filter_comparison.php)

In addition, people are exposed to disinfection by-products, including TTHMs from other uses of the water besides drinking water. If you wish to reduce your overall TTHM exposure risk, the following recommendations may be helpful:

1. Ventilate the bathroom when bathing or showering;
2. Operate room exhaust fans or ventilate room (open window) when boiling water, washing with hot water or running the dishwasher;
3. Reduce the length of showers and baths;
4. Reduce the temperature on hot water heaters; and

5. Limit time spent in or around chlorinated pools or hot tubs.

***What steps are being taken to correct the situation?***

TTHMs levels can vary depending on a number of factors including the amount of chlorine used, amount of organic plant material in water sources, temperature, and seasons. We must control TTHM levels while also maintaining appropriate levels of disinfectant in the water necessary to avoid bacterial issues. Our water system is working with MassDEP on evaluating immediate short-term operations changes and long-term upgrades to the treatment plant and system with the intention of correcting this issue.

***Who should customers contact for more information about the Public Water System?***

The District remains the primary contact for all questions regarding the Public Water System. Any questions concerning sample results, status of projects, public notice inquires, etc. should be directed to **Michael F. Knox, Superintendent, at 508-892-9616.**

Please also visit our website at [www.cvrwd.com](http://www.cvrwd.com) or contact us at Cherry Valley and Rochdale Water District P.O. Box 138, Rochdale, MA 01542-0138.

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