



2005 Drinking Water Quality Report

City of Dover Department of Public Utilities
860 Buttner Place
Dover, Delaware 19904

June 15, 2006

As consumers become more health conscious, they require more information to help them make informed decisions about the products they consume. The Safe Drinking Water Act was amended, in 1996, to ensure consumers are provided with an Annual Water Quality Report containing this important information about their drinking water. The City of Dover is pleased to present our Annual Water Quality Report for the 2005 calendar year. Our goal as a public water purveyor is to provide a healthy and dependable supply of drinking water to our customers, many of which are family and friends of the dedicated people entrusted with the production, treatment, distribution and sampling of our water each and every day of the year. We want our customers to understand the continuous efforts we are making to improve the City's water treatment process and to protect our customers, families and friends, as well as our precious water resources. The City of Dover is committed to providing the highest quality drinking water possible.

Drinking water can come from many sources. The sources of drinking water (both tap water and bottled water) include 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 materials and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. **The City of Dover's water supply system uses groundwater as its source of supply. Our public drinking water wells draw water from the Cheswold, Piney Point, and Columbia Aquifers.** In order to ensure that tap water is safe to drink, the EPA (Environmental Protection Agency) prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations established limits for contaminants in bottled water which must provide the same protection for public health.

This water quality report identifies some of the components of the City's drinking water. If you have any questions concerning the information contained in this report, please contact **Ms. Sharon J. Duca, P.E., Assistant City Engineer, or Mr. John Sisson, Water Production Supervisor, at (302) 736-7070.** Interested customers can also attend any of our regularly scheduled City Council meetings. These meetings are held on the second and fourth Mondays of each month in the Council Chambers of City Hall, 15 E. Loockerman Street, Dover, Delaware. The open forum segment of these meetings begins at 7:15 p.m. As a public water purveyor, we want our customers to be informed about the quality of their water supply and the dedicated efforts of the City's water utility.

The **City of Dover** routinely monitors for various constituents in your drinking water in accordance with all Federal and State laws. An average of over 1,800 routine analyses are performed every month on samples drawn every day from various locations throughout the city. A table has been included in this report which shows the results of the City's required monitoring for the period of **January 1st thru December 31st, 2005**. As indicated previously, water which travels over land or underground can pick up substances or contaminants such as microbes, inorganic and organic chemicals, and radioactive substances. All drinking water, including bottled water, may be reasonably expected to contain at least small amounts of these substances or contaminants. It's important to remember that the mere presence of one or more of these constituents does not necessarily indicate that the water poses a health risk. 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. More information about contaminants and potential health effects, as well as EPA/CDC guidelines on appropriate means to lessen the risk of infection by microbial contaminants, can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline (1-800-426-4791).

This report contains the following terms and/or abbreviations which you may not be familiar with. To help you better understand these terms we have provided some basic definitions:

Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million or one milligram per liter corresponds to one minute in two years or a single penny in \$10,000⁰⁰.

Parts per billion (ppb) or Micrograms per liter (µg/l) - one part per billion or one microgram per liter corresponds to one minute in two millennia or a single penny in \$10,000,000⁰⁰.

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 treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Maximum Contaminant Level - the "Maximum Contaminant Level" (MCL) is the highest level of a contaminant that is allowed in your drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal - the "Goal" (MCLG) is 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.

Lead & Copper Rule: In August 2003, the City of Dover obtained 37 water samples from our customers to comply with the requirements of the Lead & Copper Rule. These samples were analyzed by an independent private laboratory. Our results for lead indicated the 90th percentile sample had 0.004 mg/L of lead present in the sample. This result is below the action level of 0.015 mg/L for lead. Our results for copper indicated the 90th percentile sample had 0.2054 mg/L of copper present in the sample. This result is below the action level of 1.3 mg/L for copper. Since our results were below the action level for both substances, no further action was required. The City of Dover will perform another round of sampling to comply with this rule in late summer 2006.

Total Coliform: The Total Coliform Rule required water systems to meet stricter limits for Coliform bacteria. Coliforms are bacteria that are naturally present in the environment and are usually harmless, but their presence in water can be an indication that other, potentially harmful or disease-causing, bacteria may be present. When Coliform bacteria are found, special follow-up testing is done in order to determine if harmful bacteria are present in the water supply. If the strict limit is exceeded, the water supplier must notify the public by newspaper, television or radio and take immediate corrective action which may include chlorinating and/or flushing the distribution system in the affected area.

As indicated in the following table, the City's water system had no violations for Total Coliform in the 2005 calendar year. We're proud that your drinking water currently meets or exceeds all Federal and State requirements.

2005 TEST RESULTS

CONTAMINANT	VIOLATION Y/N	LEVEL DETECTED	UNIT MEASUREMENT	MCLG	MCL	LIKELY SOURCE OF CONTAMINATION
MICROBIOLOGICAL CONTAMINANTS						
Total Coliform Bacteria	N	presence in 2½% of samples taken in August 2005 (1 sample)	Present / Absent	0	presence in 5% of monthly samples	Naturally present in the environment. Re-sampling indicated the sample may have been contaminated during the sampling process.
INORGANIC CONTAMINANTS (Some sampling, indicated in this section, occurred in 2003 and 2004.*)						
Arsenic (As)	N	0.1 – 4.6 (2003-2004)	ppb	n/a	50	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics wastes.
Cadmium (Cd)	N	<0.1 - 0.1 (2003-2004)	ppb	5	5	Corrosion of galvanized pipes; Erosion of natural deposits; Runoff from waste batteries and paints.
Chromium (Cr)	N	<0.1 - 9.4 (2003-2004)	ppb	100	100	Erosion of natural deposits.
Fluoride (F)	N	0.53 – 1.14 (2005)	ppm	1.8	1.8	Erosion of natural deposits; water additive which promotes strong teeth.
Lead (Pb)	N	0.3 - 1.6 (2003-2004)	ppb	0	AL=15	Erosion of natural deposits.
Nickel (Ni)	N	0.4 – 3.0 (2003-2004)	ppb	100	100	Erosion of natural deposits.
Nitrate (NO3)	N	<0.3 – 5.3 (2005)	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks & sewage.
Selenium (Se)	N	0.3 – 2.2 (2003-2004)	ppb	50	50	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
UNREGULATED INORGANIC CONTAMINANTS						
Iron (Fe)	N	< 50 - 300	ppb	0	300	
Sodium (Na)	N	12 -158	ppm	20	N/A	
Alkalinity	N	50 - 319	ppm	N/A	N/A	
pH	N	7.2 – 7.9		6.5-8.5	6.5-8.5	
Chloride (Cl)	N	5.8 – 21.5	ppm	250	250	
Hardness	N	14 - 92	ppm	N/A	N/A	
Total Dissolved Solids	N	174-410	ppm	500	500	
VOLATILE ORGANIC CONTAMINANTS						
TTHM's (Total Trihalomethanes)	N	<0.5 – 27.4	ppb	n/a	80	Byproduct of drinking water chlorination.
HAA5's (Total Haloacetic Acids)	N	<1.0 – 14.1	ppb	n/a	60	Byproduct of drinking water chlorination.

* Drinking Water Regulations allow us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Data for this compliance period was collected in the 2003, 2004 and 2005 calendar years and, though representative, some data is more than one year old.

Nitrates & Nitrites: While the City of Dover did not exceed the maximum contaminant levels for each of these particular contaminants, the significant agricultural uses in the watershed require us to pay special attention to these levels. Nitrate in drinking water at levels above 10 ppm is a health risk for Infants of less than six (6) months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

The following contaminants were tested for and not found: Antimony, Barium, Beryllium, Bromate, Mercury, Thallium, Cyanide and Nitrite.

Source Water Assessment: The Division of Public Health, in conjunction with the Delaware Department of Natural Resources and Environmental Control (DNREC) Division of Water Resources, has completed the Source Water Assessment for the public water supply wells for the City of Dover as required under the 1996 amendments to the Safe Drinking Water Act. (Source water assessments for nearly all community water system in Delaware have been conducted.) This assessment has been performed using the methods specified in the State of Delaware Source Water Assessment Plan (DNREC, 1999). Contact the City of Dover Department of Public Utilities' office at 302-736-7070 regarding its availability and how to obtain a copy of this assessment. You may also review it on-line at the following website: <http://www.wr.udel.edu/swaphome>. The following information was excerpted from the summary of the assessment for the City of Dover:

"There are twenty-two (22) supply wells used by Dover for their drinking water supply. Fifteen (15) of these wells are located in confined aquifers. Nine (9) wells are in the Cheswold aquifer and six (6) wells are in the Piney Point aquifer. Because these wells are in confined aquifers, they have a low vulnerability. The remaining seven (7) wells are in the unconfined Columbia aquifer and have a high vulnerability to contaminants.

There are fourteen (14) discrete potential sources of contamination located within wellhead protection areas around these twenty-two (22) wells. There are nine (9) underground storage tank facilities, two (2) wastewater outfall sites, one (1) salvage yard, and one (1) superfund site located within the delineated well head areas. The dominant land use for the wellhead protection area is crop land.

Data from the Department of Health and Social Services' Division of Public Health's Office of Drinking Water's (DPH-ODW) analytical database was reviewed for raw/untreated water quality data for the past five years. If any naturally occurring compound was detected above 50% of the drinking water standard or any synthetic compound was detected, then all data for that compound were recorded. However, it should be noted that Dover's water supply system utilizes certain treatment methods that remove contaminants or impurities from the drinking water before it is delivered to the public.

A system-wide susceptibility is based on the most conservative rating from the wells that summarize the most susceptible portion to this system. Overall, Dover's drinking water supply system has documented exceedences to pathogens, metals, and other inorganics, a very high susceptibility to nutrients, petroleum hydrocarbons, a high susceptibility to pesticides and other organics, and a moderate susceptibility to PCBs.

This is a conservative assessment of the system based on a roll-up of the individual wells. The system wide susceptibility does not stand alone in describing a systems water quality. The system wide susceptibility is a tool in which to better understand what could be happening in the source water area. To completely understand the overall system susceptibility, a well-by-well approach is needed to fully understand the susceptibility to Dover Water."

As part of our ongoing efforts to maintain a viable and dependable water supply, it may be necessary from time to time to make improvements to the City's water distribution and treatment systems in your area. For example, the City of Dover began continuous chlorination of our entire water supply in 2002. In addition, the City of Dover began continuous fluoridation of the City's water supply from both the Cheswold and Columbia Aquifers in 2003.

City staff is also diligently working to improve non-regulated water quality aspects of the water system through system wide flushing operations, sample and treatment method analyses and operational upgrades. These employees work around the clock in an effort to provide the highest quality drinking water to all of our water customers. We would like to thank our customers for your patience and understanding as we continue to make improvements to the City of Dover's water system.