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Annual
WATER
QUALITY
REPORT

Reporting Year 2012



Presented By
Denville Water

PWS ID#: NJ408001

There When You Need Us

We are once again proud to present our annual water quality report, covering all testing performed between January 1 and December 31, 2012. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

Where Does My Water Come From?

Our primary drinking water supply is from a groundwater source called the Early Mesozoic Basin Aquifer. The rock type in this aquifer is sandstone. We have five wells placed throughout the area that are used to draw from this groundwater supply. In addition to our own wells, we purchase water from the Morris County Municipal Utilities Authority (MUA). The MUA operates six wells in Alamatong, located in Randolph and Chester Township, and two wells in Flanders Valley, located in Mount Olive and Roxbury Township. These wells draw from the Upper and Lower Stratified Glacier Drift and the Lower Leithsville Limestone Formations. Customers from the south side of town receive their drinking water solely from the MUA. Customers in all other areas receive their water from the Denville Water Department. Demand for good, safe drinking water is high: we provide to our customers an average of 1.8 million gallons of water every day.

Our water supply is part of the Hackensack-Passaic Watershed, which covers an area of about 1,123 square miles. One-third of our watershed is covered by urban development, with the remainder under forest cover or used for agricultural purposes. We are entrusted to maintain this watershed property, ensuring a safe and dependable water supply to our customers. To learn more about our watershed on the Internet, go to the U.S. EPA's Surf Your Watershed Web site at www.epa.gov/surf.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

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 minerals, in some cases, radioactive material, and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

How Is My Water Treated and Purified?

Our groundwater supply is not exposed to air and is not subject to the direct pollution and contamination that a river or a reservoir may receive. In fact, because groundwater is the safest and highest quality water available to meet the public health demand of water intended for human consumption, we are able to provide your water directly from the source. However, as an additional service to our customers, we initially process our water through an air stripper to remove volatile organic compounds, like MTBE. Then we add chlorine (a precaution against any bacteria that may be present), vyrodox (for manganese removal), and caustic soda (used to adjust final pH and alkalinity) before pumping the water to sanitized underground reservoirs, water towers, and into your home or business. We carefully monitor the amount of these water additives, adding the lowest quantity necessary to protect the safety of your water without compromising quality and taste.

Lead in Home Plumbing

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. We 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 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 or at www.epa.gov/safewater/lead.

Information on the Internet

The U.S. EPA Office of Water (www.epa.gov/watrhome) and Centers for Disease Control and Prevention (www.cdc.gov) Web sites provide information on many issues relating to water resources, water conservation, and public health. Also, the New Jersey Department of Health's Web site (www.state.nj.us) provides complete and current information on water issues in New Jersey, including valuable information about our watershed.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Joseph J. Lowell, licensed Operator, at (973) 625-8334.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. We meet the first and third Tuesday of each month, beginning at 7:30 p.m. at City Hall, 1 St. Marys Place, Denville, NJ.

Water Conservation

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

Radon

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to radon entering the home through soil, radon entering the home through tap water will in most cases be a small source of radon in indoor air. Radon is a known human carcinogen. Breathing air containing radon can lead to lung cancer. Drinking water containing radon may also cause increased risk of stomach cancer. If you are concerned about radon in your home, test the air in your home. Testing is inexpensive and easy. You should pursue radon removal for your home if the level of radon in your air is 4 pCi/L or higher. There are simple ways to fix a radon problem that are not too costly. For additional information, call your state radon program or call U.S. EPA's Radon Hotline at (800) SOS-RADON.

What Causes the Pink Stain on Bathroom Fixtures?

The reddish-pink color frequently noted in bathrooms on shower stalls, tubs, tile, toilets, sinks, toothbrush holders, and on pets' water bowls is caused by the growth of the bacterium *Serratia marcescens*. *Serratia* is commonly isolated from soil, water, plants, insects, and vertebrates (including man). The bacteria can be introduced into the house through any of the above mentioned sources. The bathroom provides a perfect environment (moist and warm) for bacteria to thrive.

The best solution to this problem is to continually clean and dry the involved surfaces to keep them free from bacteria. Chlorine-based compounds work best, but keep in mind that abrasive cleaners may scratch fixtures, making them more susceptible to bacterial growth. Chlorine bleach can be used periodically to disinfect the toilet and help to eliminate the occurrence of the pink residue. Keeping bathtubs and sinks wiped down using a solution that contains chlorine will also help to minimize its occurrence.

Serratia will not survive in chlorinated drinking water.

Source Water Assessment

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued a Source Water Assessment Report of our drinking water sources, which is available at www.state.nj.us/dep/swap or by contacting NJDEP's Bureau of Safe Drinking Water at (609) 292-5550. The purpose of the assessments was to determine the susceptibility of each drinking water source to potential contaminant sources (PCSs) and assign a relative rating of high, moderate, or low for each source. The PCSs include pathogens; nutrients; pesticides; volatile organic compounds; inorganics; radionuclides; radon; and disinfection by-product precursors.

The relative susceptibility rating of our water source was determined by combining the contaminant rating (number and location of PCSs within the assessment area) and the inherent vulnerability rating (i.e., characteristics or existing conditions of the watershed and its delineated assessment area). The assessment reported a susceptibility rating from low to high for our water source. This susceptibility rating does not imply poor water quality; rather, it signifies the system's potential to become contaminated in the assessment area.

If you have any questions about these findings, please contact us during regular business hours.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. The state requires us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) 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 (800) 426-4791.

REGULATED SUBSTANCES ¹									
				Township of Denville Water Department		MUA			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
1,4-Dichlorobenzene (ppb)	2012	75	NA	1.8	ND-1.8	NA	NA	No	Discharge from industrial chemical factories
Alpha Emitters (pCi/L)	2011	15	0	2.92	1.17-2.92	3.6	ND-3.6	No	Erosion of natural deposits
Arsenic (ppb)	2011	5	0	0.001	ND-0.001	0.6	ND-0.6	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Asbestos (MFL)	2009	7	7	4.4	ND-4.4	NA	NA	No	Decay of asbestos cement water mains; Erosion of natural deposits
Barium (ppm)	2011	2	2	0.017	0.012-0.017	0.5	ND-0.5	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2012	[4]	[4]	0.347	0.309-0.347	0.5	0.5-0.5	No	Water additive used to control microbes
Chromium (ppb)	2012	100	100	0.001	ND-0.001	1.6 ²	0.8-1.6 ²	No	Discharge from steel and pulp mills; Erosion of natural deposits
Fluoride (ppm)	2011	4	4	0.13	ND-0.13	0.2	0.07-0.2	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA]-Stage 2 (ppb)	2012	60	NA	6.3	ND-6.3	18	ND-18	No	By-product of drinking water disinfection
Nickel (ppb)	2011	100	NA	NA	NA	3.5	0.7-3.5	No	Pollution from mining and refining operations; Natural occurrence in soil
Nitrate (ppm)	2012	10	10	1.92	ND-1.92	3.5	0.6-3.5	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	2011	50	50	NA	NA	0.8	ND-0.8	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes]-Stage 2 (ppb)	2012	80	NA	6.8	1.6-6.8	6	ND-6	No	By-product of drinking water disinfection
Total Coliform Bacteria ³ (# positive samples)	2012	1 positive monthly sample	0	NA	NA	2	NA	No	Naturally present in the environment
Tap water samples were collected for lead and copper analyses from sample sites throughout the community									
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/ TOTAL SITES	VIOLATION	TYPICAL SOURCE		
Copper (ppm)	2011	1.3	1.3	0.134	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits		
Lead (ppb)	2011	15	0	6	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits		

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	RUL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	EXCEEDANCE	TYPICAL SOURCE
Chloride (ppm)	2011	250	NA	0.024	0.004–0.024	No	Runoff/leaching from natural deposits
Hardness [as CaCO ₃] (ppm)	2011	250	NA	298	198–298	No	Naturally occurring
pH (Units)	2012	6.5–8.5	NA	8.3	7.1–8.3	No	Naturally occurring
Sodium ⁴ (ppm)	2011	50	NA	70.8	19.2–70.8	No	Naturally occurring
Sulfate (ppm)	2011	250	NA	27	16–27	No	Runoff/leaching from natural deposits; Industrial wastes

Definitions

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 that is allowed in drinking water. MCLs are set as close to the MCLGs 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. MCLGs allow for a margin of safety.

MFL (million fibers per liter): A measure of the presence of asbestos fibers that are longer than 10 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.

NA: Not applicable.

ND (Not Detected): Indicates that the substance was not found by laboratory analysis.

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

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

RUL (Recommended Upper Limit): The highest level of a contaminant recommended in drinking water. RULs are set to protect the odor, taste, and appearance of drinking water.

¹ Under a waiver granted on December 30, 1998, by the State of New Jersey Department of Environmental Protection, our system does not have to monitor for synthetic organic chemicals/pesticides because several years of testing have indicated that these substances do not occur in our source water. The SDWA regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos, volatile organic chemicals, and synthetic organic chemicals. Our system received monitoring waivers for synthetic organic chemicals and asbestos.

² Sampled in 2011.

³ MUA reported 1 positive routine sample in August and 1 in September; 1 positive repeat in September.

⁴ For healthy individuals, the sodium intake from water is not important, because a much greater intake of sodium takes place from salt in the diet. However, sodium levels above the recommended upper limit may be a concern to individuals on a sodium restricted diet.