

ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2015



Presented By
Township of Denville
Water Department

DENVILLE TOWNSHIP

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Meeting the Challenge

Once again we are proud to present our annual drinking water report, covering all drinking water testing performed between January 1 and December 31, 2015. 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 your homes and businesses. 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 of our water users.

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

For more information about this report, or for any questions relating to your drinking water, please call Thomas M. Andes, Licensed Water Treatment Operator, at (973) 625-8334.

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 Townships, and two wells in Flanders Valley, located in Mount Olive and Roxbury Townships. 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 our customers an average of 2.2 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.

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. Vyredox for manganese removal is conducted. Then we add chlorine (a precaution against any bacteria that may be present) before pumping the water to sanitized, underground reservoirs, water towers, and into your home or business. We carefully monitor the amount of water additive, adding the lowest quantity necessary to protect the safety of your water without compromising quality and taste.

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 Tuesdays of each month, beginning at 7:30 p.m. at Township Hall, 1 St. Marys Place, Denville, NJ.

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 that 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.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

Susceptibility Ratings for Denville Township Water Department Sources

Denville Township Water Department is a public community water system consisting of 5 wells.

This system's source water comes from the following aquifer: Glacial Sand and Gravel Aquifer System

This system can purchase water from the following water systems: Rockaway Borough Water Department, Boonton Township Water Department, Morris County MUA, Mountain Lakes Water Department, Parsippany Troy Hills Water Department, Randolph MUA

The table below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The table provides the number of wells and intakes that rated high (H), medium (M), or low (L) for each contaminant category. For susceptibility ratings of purchased water, refer to the specific water system's source water assessment report.

The seven contaminant categories are defined at the bottom of this page. DEP considered all surface water highly susceptible to pathogens, therefore all intakes received a high rating for the pathogen category. For the purpose of Source Water Assessment Program, radionuclides are more of a concern for ground water than surface water. As a result, surface water intakes' susceptibility to radionuclides was not determined and they all received a low rating.

If a system is rated highly susceptible for a contaminant category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination. Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. As a result of the assessments, DEP may customize (change existing) monitoring schedules based on the susceptibility ratings.

CONTAMINANT CATEGORY	SOURCES	WELLS-5
Pathogens	H	
	M	5
	L	
Nutrients	H	5
	M	
	L	
Pesticides	H	
	M	
	L	5
Volatile Organic Compounds	H	5
	M	
	L	
Inorganics	H	
	M	1
	L	4
Radionuclides	H	
	M	5
	L	
Radon	H	2
	M	3
	L	
Disinfection Byproduct Precursors	H	3
	M	2
	L	

Pathogens: Disease-causing organisms such as bacteria and viruses. Common sources are animal and human fecal wastes.

Nutrients: Compounds, minerals and elements that aid growth, that are both naturally occurring and man-made. Examples include nitrogen and phosphorus.

Volatile Organic Compounds: Man-made chemicals used as solvents, degreasers, and gasoline components. Examples include benzene, methyl tertiary butyl ether (MTBE), and vinyl chloride.

Pesticides: Man-made chemicals used to control pests, weeds and fungus. Common sources include land application and manufacturing centers of pesticides. Examples include herbicides such as atrazine, and insecticides such as chlordane.

Inorganics: Mineral-based compounds that are both naturally occurring and man-made. Examples include arsenic, asbestos, copper, lead, and nitrate.

Radionuclides: Radioactive substances that are both naturally occurring and man-made. Examples include radium and uranium.

Radon: Colorless, odorless, cancer-causing gas that occurs naturally in the environment. For more information go to <http://www.nj.gov/dep/rpp/radon/index.htm> or call (800) 648-0394.

Disinfection Byproduct Precursors: A common source is naturally occurring organic matter in surface water. Disinfection byproducts are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example leaves) present in surface water.

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 we 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/lead.

Sampling Results

During the past year, we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, and volatile organic contaminants. The tables below show only those contaminants that were detected in the water. The state requires us to monitor for certain substances less often 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.

We participated in the 3rd stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the EPA needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information on this program.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised persons such as those with cancer undergoing chemotherapy, those 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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	Township of Denville Water Department		MUA		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
Alpha Emitters (pCi/L)	2011	15	0	3.88	ND–3.88	3.6	ND–3.6	No	Erosion of natural deposits
Arsenic (ppb)	2014	5	0	1	ND–1	0.5	ND–0.5	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2014	2	2	0.016	0.013–0.016	0.8	ND–0.8	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine ² (ppm)	2015	[4]	[4]	0.39	NA	0.6	NA	No	Water additive used to control microbes
Chromium (ppb)	2014	100	100	1	1–1	1.6	ND–1.6	No	Discharge from steel and pulp mills; Erosion of natural deposits
Combined Radium (pCi/L)	2011	5	0	1.5	ND–1.5	NA	NA	No	Erosion of natural deposits
Dichloromethane (ppb)	2015	3	NA	1	ND–1	NA	NA	No	Discharge from pharmaceutical and chemical factories
Fluoride (ppm)	2014	4	4	0.07	ND–0.07	0.2	0.06–0.2	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs] ³ (ppb)	2015	60	NA	NA	NA	1	ND–3	No	By-product of drinking water disinfection
Nickel (ppb)	2014	100	NA	1	ND–1	1.9	ND–1.9	No	Pollution from mining and refining operations; Natural occurrence in soil
Nitrate (ppm)	2015	10	10	1.93	0.552–1.93	2.6	0.6–2.6	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
p-Dichlorobenzene (ppb)	2015	75	75	1.1	ND–1.1	NA	NA	No	Discharge from industrial chemical factories
Selenium (ppb)	2014	50	50	NA	NA	0.9	ND–0.9	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes] ⁴ (ppb)	2015	80	NA	2	ND–5.8	NA	NA	No	By-product of drinking water disinfection
Total Coliform Bacteria ⁵ (# positive samples)	2015	1 positive monthly sample	0	NA	NA	1	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)	2014	1.3	1.3	0.152	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2014	15	0	3	1/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

				Township of Denville Water Department		MUA			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	RUL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Sodium ⁶ (ppm)	2014	50	NA	70.6	19.1–70.6	63	6–63	No	Naturally occurring

UNREGULATED CONTAMINANT MONITORING RULE PART 3 (UCMR3)

		Township of Denville Water Department		MUA			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE	
1,4-Dioxane (ppb)	2014	0.12	ND–0.12	NA	NA	Cyclic aliphatic ether; Used as a solvent or solvent stabilizer in manufacture and processing of paper, cotton, textile products, automotive coolant, cosmetics, and shampoos	
Chlorate (ppb)	2014	1,700	ND–1,700	120 ⁷	ND–120 ⁷	Agricultural defoliant or desiccant; Disinfection by-product and used in the production of chlorine	
Chromium (ppb)	2014	0.46	ND–0.46	1.2 ⁷	ND–1.2 ⁷	Naturally occurring element; Used in the making of steel and other alloys; Chromium-3 or -6 forms used for chrome plating, dyes and pigments, leather tanning, and other wood preservation	
Hexavalent Chromium (ppb)	2014	0.46	0.11–0.46	0.67	0.29–0.67	Naturally occurring element; Used in the making of steel and other alloys; Chromium-3 or -6 forms used for chrome plating, dyes and pigments, leather tanning, and other wood preservation	
Strontium (ppb)	2014	200	82–200	53 ⁷	29–53 ⁷	Naturally occurring element; Historical commercial use in the faceplate glass of cathode-ray tube televisions to block X-ray emissions	
Vanadium (ppb)	2014	1.2	0.37–1.2	1.4 ⁷	ND–1.4 ⁷	Naturally occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst	

Definitions

AL (Action Level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as LRAAs.

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.

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): RULs are established to regulate the aesthetics of drinking water like taste and odor.

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 Amount Detected value represents an average.

³ Amount Detected value represents the Highest Locational Annual Average.

⁴ Amount Detected value represents the Locational Running Annual Average (LRAA).

⁵ 1 Positive routine sample in September 2015.

⁶ 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.

⁷ Sampled in 2015.