

Annual Drinking Water Quality Report

The Township of Roxbury Water Utility

Report for the Year 2016, Results from the Year 2015

Following is this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality of water and services we deliver to you every day. The Township of Roxbury Water Utility routinely monitors for contaminants in your drinking water according to Federal and State laws. The tables show the results of our monitoring for the period of January 1st to December 31st, 2015. The state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants does not change frequently. Some of our data, though representative, are more than one year old.

Our water sources: We have two sources: our wells and water purchased from the Morris County MUA. Our water utility now consists of three individual water systems as shown in the tables below. Effective June 1, 2013, the Lookout Mountain Estates System PWSID # NJ1436007 was merged with the Skyview Estates System PWSID # NJ1436004. Our nine (9) wells draw water from geologic formations known as the Precambrian Granite and Stratified Drift Aquifers. Well depths in those formations are approximately 115 feet and 235 feet deep respectively. The Morris County MUA draws water from the Stratified Glacial Drift and the Leithville Limestone Formations. The New Jersey Department of Environmental Protection (NJDEP) has completed and issued the Source Water Assessment Report and Summary for these public water systems, which are available at www.state.nj.us/dep/swap or by contacting NJDEP's Bureau of Safe Drinking Water at (609) 292-5550. You may also contact your public water system to obtain information regarding your water system's Source Water Assessment. Our source water susceptibility ratings are included in this report.

Vulnerable populations: 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. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Skyview Estates - PWS ID # NJ1436004 "Test Results"						
Contaminant	Violation Y/N	Level Detected	Units of Measurement	MCLG	MCL	Likely Source
Inorganic Contaminants:						
Arsenic Test results Yr. 2015	N	Range = 0.6 – 0.7 Highest detect = 0.7	ppb	N/A	5	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium Test results Yr. 2015	N	Range = ND – 0.096 Highest detect = 0.096	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium Test results Yr. 2015	N	Range = ND – 0.06 Highest detect = 0.06	ppb	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Chromium Test results Yr. 2015	N	Range = ND – 0.7 Highest detect = 0.7	ppb	100	100	Discharge from steel and pulp mills; erosion of natural deposits
Copper Test Results Yr. 2014 Result at 90 th Percentile	N	0.09 No samples exceeded the action level	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead Test Results Yr. 2014 Result at 90 th Percentile	N	3.5 No samples exceeded the action level	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen) Test Results Yr. 2015	N	Range = 2.0 – 2.6 Highest detect = 2.6	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Microbiological Contaminants:						
Total Coliform Bacteria	N	1 positive routine sample in August 2015		0	1 positive monthly sample	Naturally present in the environment
Secondary Contaminants:						
Sodium Test Results Yr. 2015		Level Detected Range = 21 - 68	Units of Measurement ppm			RUL 50

The Skyview Estates System had a positive Total Coliform Bacteria sample in August 2015. We immediately resampled the location and all sources and all test results were negative. Total Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.

The Skyview Estates, Landing/Shore Hills & Kenvil/Ledgewood, and the Morris County MUA Systems exceeded the Secondary Recommended Upper Limit (RUL) for sodium. For healthy individuals the sodium intake from water is not considered significant, because a much greater intake of sodium takes place from salt in the diet. However, sodium levels above the Recommended Upper Limit (RUL) may be of concern to individuals on a sodium restricted diet.

Landing/Shore Hills & Kenvil / Ledgewood PWS ID # NJ1436003 "Test Results"						
Contaminant	Violation Y/N	Level Detected	Units of Measurement	MCLG	MCL	Likely Source
Inorganic Contaminants:						
Barium Test results Yr. 2015	N	Range = 0.2 – 0.3 Highest detect = 0.3	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium Test results Yr. 2015	N	Range = 0.03 – 0.05 Highest detect = 0.05	ppb	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Chromium Test results Yr. 2015	N	Range = ND – 0.98 Highest detect = 0.98	ppb	100	100	Discharge from steel and pulp mills; erosion of natural deposits
Copper Test Results Yr. 2015 Result at 90 th Percentile	N	0.19 No samples exceeded the action level.	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead Test Results Yr. 2015 Result at 90 th Percentile	N	2.9 No samples exceeded the action level.	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Mercury (inorganic) Test results Yr. 2015	N	Range = ND – 0.09 Highest detect = 0.09	ppb	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Nitrate (as Nitrogen) Test Results Yr. 2015	N	Range = ND – 1.5 Highest detect = 1.5	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Thallium Test results Yr. 2015	N	Range = ND – 0.7 Highest detect = 0.7	ppb	0.5	2	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Secondary Contaminants:		Level Detected	Units of Measurement		RUL	
Sodium Test Results Yr. 2015		Range = 18 - 164	ppm		50	

Evergreen Acres PWS ID # NJ1436006 "Test Results"						
Contaminant	Violation Y/N	Level Detected	Units of Measurement	MCLG	MCL	Likely Source
Inorganic Contaminants:						
Arsenic Test results Yr. 2015	N	1.2	ppb	N/A	5	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium Test results Yr. 2015	N	0.09	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium Test results Yr. 2015	N	0.05	ppb	4	4	Discharge from metal refineries and coal-burning factories; discharge from electrical, aerospace, and defense industries
Copper Test Results Yr. 2015 Result at 90 th Percentile	N	0.03 No samples exceeded the action level	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits
Lead Test Results Yr. 2015 Result at 90 th Percentile	N	ND No samples exceeded the action level	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Mercury (inorganic) Test results Yr. 2015	N	0.08	ppb	2	2	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills; runoff from cropland
Secondary Contaminants:		Level Detected	Units of Measurement		RUL	
Manganese Test Results Yr. 2015		57	ppb		50	

All Roxbury Township Water Systems PWS ID # NJ1436003, NJ1436004 & NJ1436006 "Test Results"						
Contaminant	Violation Y/N	Level Detected	Units of Measurement	MCLG	MCL	Likely Source
Disinfection By-Products – All Township Water Systems						
TTHM Total Trihalomethanes Test Results Yr. 2015	N	Range = ND – 13 Highest Detect = 13	ppb	N/A	80	By-product of drinking water disinfection
HAA5 Haloacetic Acids Test Results Yr. 2015	N	Range = ND – 2 Highest detect = 2	ppb	N/A	60	By-product of drinking water disinfection
Regulated Disinfectants:		Level Detected	MRDL		MRDLG	
Chlorine (All Roxbury Systems) Test Results Yr. 2015		Average = 0.4 ppm	4.0 ppm		4.0 ppm	

The Evergreen Acres Water System exceeded the Secondary Recommended Upper Limit (RUL) for manganese. The recommended upper limit for manganese is based on staining of laundry. Manganese is an essential nutrient, and toxicity is not expected from levels which would be encountered in drinking water.

Unregulated Contaminants for Which EPA Requires Monitoring

The Township of Roxbury Water Utility collected data in 2014 as part of an ongoing study to determine the general occurrence of unregulated contaminants. Currently, there are no drinking water standards for these compounds. The Township of Roxbury Water Utility continues to participate in and supports these types of regulatory and research methods to improve our drinking water. Unregulated contaminant monitoring helps the USEPA and the NJDEP to determine where certain contaminants occur and whether they should consider regulating those contaminants in the future.

Contaminant	Level Detected	Units of Measurement	Likely source
Chlorate	Range = ND – 160	ppb	Agricultural defoliant of desiccant; disinfection byproduct; used in the production of chloride dioxide
Chromium	Range = ND – 0.5	ppb	Naturally-occurring element; used in the making of steel and other alloys; chromium -3 or -6 are used for chrome plating, dyes and pigments, leather tanning, and other wood preservation
Chromium (VI) (Hexavalent)	Range = 0.19 – 0.46	ppb	Naturally-occurring element; used in the making of steel and other alloys; chromium -3 or -6 are used for chrome plating, dyes and pigments, leather tanning, and other wood preservation
Strontium	Range = 40 – 110	ppb	Naturally-occurring element; historically commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium	Range = ND – 0.4	ppb	Naturally-occurring element metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst
Manganese	Range = ND – 2.6	ppb	Erosion of natural deposits
n-Propylbenzene	Range = ND – 0.05	ppb	Natural constituent in petroleum and bituminous coal; used in manufacture of methylstyrene; textile dyeing; printing solvent; asphalt and naphtha constituent

Definitions:

In the following table you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

Non-Detects (ND) - laboratory analysis indicates that the constituent is not present.

Parts per million (ppm) - one part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts per billion (ppb) - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Action Level - 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 Allowed" (MCL) is 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.

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.

Maximum Residual Disinfectant Level (MRDL) - 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.

Maximum Residual Disinfectant Level Goal (MRDLG) - 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 contamination

Secondary Contaminant - Substances that do not have an impact on health. Secondary Contaminants affect aesthetic qualities such as odor, taste or appearance. Secondary standards are recommendations, not mandates.

Recommended Upper Limit (RUL) – Recommended maximum concentration of secondary contaminants. These reflect aesthetic qualities such as odor, taste or appearance. RUL’s are recommendations, not mandates.

Morris County MUA PWS ID # NJ1432001 “Test Results”						
Contaminant	Violation Y/N	Level Detected	Units of Measurement	MCLG	MCL	Likely Source
Inorganic Contaminants:						
Arsenic Test Results Yr. 2014	N	Range = ND – 0.5 Highest detect = 0.5	ppb	N/A	5	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium Test results Yr. 2014	N	Range = ND – 0.8 Highest detect = 0.8	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium Test Results Yr. 2014	N	Range = 0.6 – 1.5 Highest detect = 1.5	ppb	100	100	Discharge from steel and pulp mills; erosion of natural deposits
Fluoride Test Results Yr. 2014	N	Range = 0.06 – 0.2 Highest detect = 0.2	ppm	4	4	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories
Nitrate (as Nitrogen) Test Results Yr. 2015	N	Range = 0.6 – 2.6 Highest detect = 2.6	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Nickel Test Results Yr. 2014	N	Range = ND – 1.9 Highest detect = 1.9	ppb	N/A	N/A	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium Test Results Yr. 2014	N	Range = ND – 0.9 Highest detect = 0.9	ppb	50	50	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Radioactive Contaminants						
Gross Alpha Test Results Yr. 2011	N	Range = ND – 3.6 Highest Average = 0.9	pCi/L	0	15	Erosion of natural deposits
Disinfection Byproducts:						
HAA5 Haloacetic Acids Test Results Yr. 2015	N	Range = ND – 3 Highest LRAA = 1	ppb	N/A	60	By-product of drinking water disinfection
Microbiological Contaminants:						
Total Coliform Bacteria	N	1 positive routine sample in September 2015		0	1 positive monthly sample	Naturally present in the environment

The Morris County MUA had a positive routine Total Coliform Bacteria sample in September 2015. They immediately resampled and all test results were negative. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.

Secondary Contaminants:	Level Detected	Units of Measurement	RUL
Sodium Test Results Yr. 2014	Range = 6 - 63	ppm	50

Regulated Disinfectants:	Level Detected	MRDL	MRDLG
Chlorine (Sodium Hypochlorite) Test results Yr. 2015	Average = 0.6 ppm	4.0 ppm	4.0 ppm

HAA5 and TTHM compliance is based on the Locational Running Annual Average (LRAA), calculated at each monitoring location. The LRAA calculation is based on four completed quarters of monitoring results.

Unregulated Contaminants for Which EPA Requires Monitoring

The Morris County MUA participated in monitoring for unregulated contaminants with the Unregulated Contaminant Monitoring Rule (UCMR). Unregulated contaminants are those for which the EPA has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA in determining the occurrence of unregulated contaminants in drinking water and whether regulation is warranted. Our results are available upon request. We found the substances listed below.

Contaminant	Level Detected	Units of Measurement	Likely source
Chlorate	Range = ND - 120	ppb	Agricultural defoliant of desiccant; disinfection byproduct; used in the production of chloride dioxide
Chromium	Range = ND – 1.2	ppb	Naturally-occurring element; used in the making of steel and other alloys; chromium -3 or -6 are used for chrome plating, dyes and pigments, leather tanning, and other wood preservation
Chromium (VI) (Hexavalent)	Range = 0.29 – 0.67	ppb	Naturally-occurring element; used in the making of steel and other alloys; chromium -3 or -6 are used for chrome plating, dyes and pigments, leather tanning, and other wood preservation
Strontium	Range = 29 - 53	ppb	Naturally-occurring element; historically commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions
Vanadium	Range = ND – 1.4	ppb	Naturally-occurring element metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst

Susceptibility Ratings for Roxbury Township Water Department

The tables below illustrate the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. Each table specifies 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 end of the tables. DEP considered all surface water highly susceptible to pathogens, therefore all intakes received a high rating for the pathogen category. For the purpose of this 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.

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.

Evergreen System Sources

	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection Byproduct Precursors		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells – 1			1	1					1			1			1	1				1			1	

Shore Hills System Sources

	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection Byproduct Precursors		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells – 4		2	2	4				1	3	3		1		4			4		1	3			4	

Skyview Estates Sources

	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection Byproduct Precursors		
Sources	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Wells – 4		2	2	2	2			2	2	1		3			4	2	2		4				4	

Waivers: The Safe Drinking Water Act regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos, volatile organic chemicals and synthetic organic chemicals. Our systems received monitoring waivers for asbestos and synthetic organic chemicals.

Lead:

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. The Township of Roxbury Water Utility and the Morris County MUA is 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 and 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 <http://www.epa.gov/safewater/lead>.

Our system had no violations. We are proud that your drinking water meets or exceeds all Federal and State standards. We learned through our monitoring and testing that some contaminants were detected, however, the EPA has determined that your water IS SAFE at this level.

For additional information: If you have any questions about this report or any matter concerning your water utility, please call Michael A. Kobylarz, Township Engineer/Director of Utilities at (973) 448-2018 or Melanie Michetti, Sr. Assistant to the Township Engineer at (973) 448-2074. Major water utility issues and decisions are discussed at Township Council meetings, 1715 Route 46, Ledgewood. Meetings are normally held on the second and fourth Tuesday nights at 7:30 p.m. You may call (973) 448-2001 to confirm the meeting schedule.

Potential sources of contamination: 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 and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants 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, and wildlife.
- Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas projection, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can, also come from gas stations, urban storm water runoff, and septic systems.
- Radioactive Contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. 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 contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.

We at the Township of Roxbury Water Utility work hard to ensure quality drinking water for each customer we serve. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life and our children's future. Please call our office if you have questions. Thank you for the opportunity to provide you this important resource.

**TOWNSHIP OF ROXBURY
1715 ROUTE 46
LEDGEWOOD, NEW JERSEY 07852**

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**ANNUAL DRINKING WATER
QUALITY REPORT FOR 2016
RESULTS FROM THE YEAR 2015**

**TOWNSHIP OF ROXBURY
WATER UTILITY**