Annual Drinking Water Quality Report

Borough of Roseland Water System

For the Year 2021, Results from the Year 2020

We are pleased to present to you this year's Annual Drinking Water Quality Report. This report is designed to inform you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water.

We are committed to ensuring the quality of your water. The Borough of Roseland Water System is owned and operated by the Borough and is supplied with water purchased from the Borough of Essex Fells Water Utility. They have sixteen wells which draw groundwater from the Watchung Basalt, Brunswick Shale, and Stratified Glacial Drift Aquifer Systems. The wells range in depth from 94 to 566 feet and they provide most of their drinking water throughout the year. In 2020 they purchased water from New Jersey American Water. Water quality test results for the Essex Fells Water Utility and New Jersey American Water are included in this report. 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 Essex Fells Water Utility Source Water Assessment. Essex Fells Water Utility's source water susceptibility ratings and a list of potential contaminant sources is included.

The Borough of Roseland Water System, the Essex Fells Water Utility and New Jersey American Water routinely monitor for contaminants in your drinking water according to Federal and State laws. The tables show the results of that monitoring for the period of January 1st to December 31st, 2020. The state allows monitoring for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of the data, though representative, are more than one year old.

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 (800-426-4791).

We have learned through our monitoring and testing that some contaminants have been detected. As you can see by the tables, the systems had no violations. We are proud that your drinking water meets or exceeds all Federal and State safety requirements.

Borough of Roseland Water System – 2020 Test Results
PWS ID #NJ0718001

Contaminant	Viola-tion Y/N	Level Detected	Units of Measure-ment	MC LG	MCL	Likely Source of Contamination
Inorganic Contaminants:						
Copper Test results Yr. 2020 Result at 90th Percentile	N	0.58 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. 2020 Result at 90th Percentile	N	5 No samples exceeded the action level.	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Disinfection Byproducts:						
TTHM Total Trihalomethanes Test results Yr. 2020	N	Range = 10 - 27 Highest LRAA = 22	ppb	N/A	80	By-product of drinking water disinfection
HAA5 Haloacetic Acids Test results Yr. 2020	N	Range = ND – 5 Highest LRAA = 2	ppb	N/A	60	By-product of drinking water disinfection

Regulated Disinfectants	Level Detected	MRDL	MRDLG
Chlorine Test results Yr. 2020	Range = 0.3 – 1.8 ppm Average = 0.5 ppm	4.0 ppm	4.0 ppm

Chlorine: Water additive used to control microbes.

For Total Halocetic Acids (HAA5s) and Total Trihalomethanes (TTHMs), which are disinfection byproducts, compliance is based on a Locational Running Annual Average (LRAA), calculated at each monitoring location. The LRAA calculation is based on four completed quarters of monitoring results.

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 Borough of Roseland Water System, the Essex Fells Water Utility and New Jersey American Water 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 second 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.

Treatment: To ensure the continued quality of their water the Borough of Essex Fells Water Utility treats it in several ways. They employ an air stripper system to eliminate trichloroethylene and other volatile organic compounds in their water. As a precautionary measure, they disinfect their water using Calcium Hypo-Chloride.

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. The Essex Fells Water Utility received monitoring waivers for asbestos and synthetic organic chemicals.

Essex Fells Water Utility - 2020 Test Results

PWS ID #NJ0706001

Contaminant	Viola-tion Y/N	Level Detected	Units of Measure-ment	MC LG	MCL	Likely Source of Contamination
Inorganic Contaminants:						
Arsenic Test results Yr. 2018	N	Range = ND – 1.2 Highest detect = 1.2	ppb	n/a	5	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium Test results Yr. 2018	N	Range = 0.19 – 0.39 Highest detect = 0.39	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Chromium Test results Yr. 2018	N	Range: 1.2 – 2.5 Highest Level = 2.5	ppb	100	100	Discharge from steel and pulp mills; erosion of natural deposits
Copper Result at 90th Percentile Test results Yr. 2018	N	0.17 No samples exceeded the action level.	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits.
Lead Result at 90th Percentile Test results Yr. 2018	N	ND No samples exceeded the action level.	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Nitrate (as Nitrogen)	N	Range: 2.1 – 3.6 Highest detect = 3.6	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Disinfection By-Products:						
HAA5 Haloacetic Acids	N	Range = ND - 2 Highest LRAA = 1	ppb	N/A	60	By-product of drinking water disinfection
TTHM Total Trihalomethanes	N	Range = ND – 7 Highest LRAA = 9	ppb	N/A	80	By-product of drinking water disinfection
Radioactive Contaminants:						
Gross Alpha Test results Yr. 2015	N	Range = ND – 4.4 Highest detect = 4.4	pCi/l	0	15	Erosion of natural deposits

Regulated Disinfectants	Level Detected	MRDL	MRDLG
Chlorine	Range = 0.4 – 0.6 ppm Average = 0.5 ppm	4.0 ppm	4.0 ppm

Chlorine: Water additive used to control microbes.

For Total Halocetic Acids (HAA5s) and Total Trihalomethanes (TTHMs), which are disinfection byproducts, compliance is based on a Locational Running Annual Average (LRAA), calculated at each monitoring location. The LRAA calculation is based on four completed quarters of monitoring results.

DEFINITIONS:

In the "Test Results" tables you may find some 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 contaminant.
Parts per million (ppm) or Milligrams per liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in $10,000.
Parts per billion (ppb) or Micrograms per liter - one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.
Parts per trillion (ppt) or nanogram per liter - one part per trillion corresponds to one minute in 20,000 years, or a single penny in $100,000,000
Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.
Nephelometric Turbidity Unit (NTU) - nephelometric turbidity unit is a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
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.
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.
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 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
Total Organic Carbon – Total Organ Carbon (TOC) has no health effects. However, TOC provides a medium for the formation of disinfection byproducts. The *Treatment Technique* for TOC requires that 35% - 45% of the TOC in the raw water is removed through the treatment processes.
Turbidity – Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium microbial growth. Turbidity is measured as an indication of the effectiveness of the filtration process. The *Treatment Technique* for turbidity requires that no individual sample exceeds 1 NTU and 95% of the samples collected during the month must be less than 0.3 NTU.

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 production, 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.

The Essex Fells Water Utility monitored for the following unregulated contaminants in 2019 & 2020. Unregulated contaminants are those for which the US Environmental Protection Agency (EPA) or the New Jersey Department of Environmental Protection (NJDEP) has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA and NJDEP in determining the occurrence of unregulated contaminants in drinking water and whether regulation is warranted. Per – and polyfluoroalkyl substances (PFAS) are widely found in the environment. EPA has identified a health advisory level for two PFAS analytes, PFOA and PFOS 0.070 ppb either singly or combined, and NJDEP has adopted new drinking water standards (Maximum Contaminant Levels (MCLs)) for PFOA and PFOS of 14 ng/L (ppt) and 13 ng/L (ppt), respectively, as of January 2021.

Contaminant	Level Detected	Units of Measurement	Likely source
(PFOS) Perfluorooctane Sulfonate	Range = 4.5 – 7.3	ppt	Used in the manufacture of fluoropolymers.
(PFOA) Perfluorooctanoic Acid	Range = 18.0 – 33.0	ppt	Used in the manufacture of fluoropolymers.

What are PFOA and PFOS?
Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are per- and polyfluoroalkyl substances (PFAS), previously referred to as perfluorinated compounds, or PFCs, that are man-made and used in industrial and commercial applications. PFOA was used as a processing aid in the manufacture of fluoropolymers used in non-stick cookware and other products, as well as other commercial and industrial uses based on its resistance to harsh chemicals and high temperatures. PFOS is used in metal plating and finishing as well as in various commercial products. PFOS was previously used as a major ingredient in aqueous film forming foams for firefighting and training, and PFOA and PFOS are found in consumer products such as stain resistant coatings for upholstery and carpets, water resistant outdoor clothing, and grease proof food packaging. Although the use of PFOA and PFOS has decreased substantially, contamination is expected to continue indefinitely because these substances are extremely persistent in the environment and are soluble and mobile in water. More information can be found at:
https://www.state.nj.us/dep/wms/bears/docs/2019-4-15-FAQs_PFOS-PFOA-websites-OLA%204-24-19SDM-(003).pdf

Cryptosporidium is a microbial pathogen found in surface water throughout the United States. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100% removal. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people, infants and small children, and the elderly are at a greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water. New Jersey American Water conducted a study of their water supply to determine the amount of Cryptosporidium in untreated raw source water. Cryptosporidium range of detections = ND – 0.182

Unregulated Contaminant Monitoring Rule (UCMR4)

New Jersey American Water participated in the Unregulated Contaminant Monitoring Rule. 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 and DEP in determining the occurrence of unregulated contaminants in drinking water and whether regulation is warranted. Our results are available upon request. For testing conducted within our service area, the following substances were found.

Unregulated Contaminant Monitoring Rule 4 (UCMR4 2018-2019)					
Contaminant	**Unit**	**NJDEP Guidance Level**	**Highest Level Detected**	**Range**	**Typical Source**
Manganese	ppb	NA	4	2 - 47	Naturally present in the environment; used in steel production, fertilizer, batteries, and fireworks; drinking water and wastewater treatment chemical

New Jersey American Water – Short Hills System is a public community water system consisting of 25 wells, 4 surface water intakes, 12 purchased ground water sources, 3 purchased surface water sources. Source water comes from the following aquifers and / or surface water bodies: Passaic River, Brunswick Aquifer System, and Canoe Brook

New Jersey American Water – Short Hills System - 2020 Test Results

PWS ID # NJ0712001

Contaminant	Viola-tion Y/N	Level Detected	Units of Measure-ment	MC LG	MCL	Likely Source of Contamination
Microbiological Contaminants:						
Total Organic Carbon	N	Range = 50 – 68% (35 – 45% Required)	ppm	N/A	TT % of removal	Naturally present in the environment.
Turbidity	N	Range = 0.02 – 0.17 100% samples < 0.3	NTU	0	TT = % of samples <0.3	Soil runoff
Inorganic Contaminants:						
Nitrate (as Nitrogen)	N	Range = ND – 0.3 Highest detect = 0.3	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Microbiological Contaminants:						
Total coliform Bacteria	N	Range = ND – 0.8% Highest Detect = 0.8%	N/A	0	5% of monthly samples	Naturally present in the environment
Radioactive Contaminants:						
Gross Alpha Test results Yr. 2018	N	Range = ND – 13.1 Highest detect = 13.1	pCi/1	0	15	Erosion of natural deposits
Combined Radium 228 & 226 Test results Yr. 2018	N	Range = ND – 3.19 Highest detect = 3.19	pCi/1	0	5	Erosion of natural deposits
Volatile Organic Contaminants:						
1,2,3 –Trichloropropane	N	Range = ND – 0.01 Highest detect = 0.01	ppb	0.03	0.03	Discharge from industrial chemical factories; erosion of natural deposits

Regulated Disinfectants:	Level Detected	MRDL	MRDLG
Chlorine	Range = 0.7 – 1.5 ppm Average = 0.7 ppm	4.0 ppm	4.0 ppm

Chlorine: Water additive used to control microbes.

Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six 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 advice from your health care provider.

NJ American Water – Short Hills System monitored for the following unregulated contaminants in 2020. Unregulated contaminants are those for which the US Environmental Protection Agency (EPA) or the New Jersey Department of Environmental Protection (NJDEP) has not established drinking water standards. The purpose of unregulated contaminant monitoring is to assist the EPA and NJDEP in determining the occurrence of unregulated contaminants in drinking water and whether regulation is warranted. Per – and polyfluoroalkyl substances (PFAS) are widely found in the environment. EPA has identified a health advisory level for two PFAS analytes, PFOA and PFOS 0.070 ppb either singly or combined, and NJDEP has adopted new drinking water standards (Maximum Contaminant Levels (MCLs)) for PFOA and PFOS of 14 ng/L (ppt) and 13 ng/L (ppt), respectively, as of January 2021.

Contaminant	Level Detected	Units of Measurement	Likely source
(PFOS) Perfluorooctane Sulfonate	Range = ND – 7.4	ppt	Used in the manufacture of fluoropolymers.
(PFOA) Perfluorooctanoic Acid	Range = ND – 2.4	ppt	Used in the manufacture of fluoropolymers.

What are PFOA and PFOS?

Perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS) are per- and polyfluoroalkyl substances (PFAS), previously referred to as perfluorinated compounds, or PFCs, that are man-made and used in industrial and commercial applications. PFOA was used as a processing aid in the manufacture of fluoropolymers used in non-stick cookware and other products, as well as other commercial and industrial uses based on its resistance to harsh chemicals and high temperatures. PFOS is used in metal plating and finishing as well as in various commercial products. PFOS was previously used as a major ingredient in aqueous film forming foams for firefighting and training, and PFOA and PFOS are found in consumer products such as stain resistant coatings for upholstery and carpets, water resistant outdoor clothing, and grease proof food packaging. Although the use of PFOA and PFOS has decreased substantially, contamination is expected to continue indefinitely because these substances are extremely persistent in the environment and are soluble and mobile in water. More information can be found at:
https://www.state.nj.us/dep/wms/bears/docs/2019-4-15-FAQs_PFOS-PFOA-websites-OLA%204-24-19SDM-(003).pdf

Special considerations regarding children, pregnant women, nursing mothers, and others:
Children may receive a slightly higher amount of a contaminant present in the water than do adults, on a body weight basis, because they may drink a greater amount of water per pound of body weight than do adults. For this reason, reproductive or developmental effects are used for calculating a drinking water standard if these effects occur at lower levels than other health effects of concern. If there is insufficient toxicity information for a chemical (for example, lack of data on reproductive or developmental effects), an extra uncertainty factor may be incorporated into the calculation of the drinking water standard, thus making the standard more stringent, to account for additional uncertainties regarding these effects. In the cases of lead and nitrate, effects on infants and children are the health endpoints upon which the standards are based.

Essex Fells Water Utility - PWSID # NJ0706001

Essex Fells Water Department is a public community water system consisting of 17 wells

This system can purchase water from the following water systems: Twp. Of Verona, New Jersey American Water – Short Hills System

Susceptibility Ratings for Essex Fells Water Utility Sources

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.

	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 - 17		**11**	6	**8**	9			**3**	**14**	**17**			**4**	**11**	2	**3**	**14**		**17**			**4**	**13**	

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.

Special Note:
Our system purchases surface water and is required to continuously monitor the residual disinfectant level. We failed to submit February 2020 chlorine results on time which resulted in violation. The results were submitted on April 6, 2020 and we returned to compliance on that date.

If you have any questions about this report or concerning your water utility, please contact Christopher Critchett, Superintendent of Public Works at 973-226-6565 ext. 6856. Always feel free to attend one of the regularly scheduled Borough Council meetings.