

# Sussex Water Department (PWSID#: NJ1921001)

1182 Route 23, Wantage, NJ 07461

## Year 2015 Annual Water Quality Report

### What's The Quality of Your Water?

Sussex Borough is proud to supply you with this year's Water Quality Report required by the State of New Jersey Department of Environmental Protection (NJDEP) and the U.S. Environmental Protection Agency (EPA). The tables in this report show the results of our water quality analysis in the year 2015. Every regulated contaminant detected in the water, even in the minutest traces, is listed. The table contains the name of each highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), usual sources of such contamination, definitions that explain what was tested, and a key to the units of measurement. *The data tables in this report show only the substances **detected** in your water; other substances may have been tested and not detected.*

The EPA requires monitoring for over 80 drinking water contaminants. The contaminants listed in the table on the next page reflect only the contaminants detected in your water for the monitoring period January 1 to December 31, 2015. We routinely monitor for contaminants in your drinking water according to federal and state laws. The state allows us to monitor for some contaminants less than once per year because the concentrations of those contaminants do not change frequently. Some of our data, though representative, may be more than one year old.

### Sources of Supply

Our water source is Lake Rutherford surface water, located in the High Point State Park.

### GENERAL DRINKING WATER INFORMATION:

#### Water 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 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:

- *Biological* - may come from human, agricultural, or wildlife sources.
- *Inorganic* - can be natural, from storm run-off, or from industrial or domestic wastewater discharges.
- *Pesticides and herbicides* - may come from agricultural, storm run-off or residential use.
- *Organic chemicals* - may come from industrial or domestic processes, storm run-off, and septic systems.
- *Radioactive materials* - can be naturally occurring or the result of mining or other human activities.

#### Presence of Contaminants

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

#### Immuno-Compromised Persons

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 microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

**SUSSEX WATER DEPARTMENT WATER QUALITY TABLE**

<b>Contaminant</b>	<b>MCL Violation Y/N</b>	<b>Level Detected via # of Samples</b>	<b>Unit of Measurement</b>	<b>MCL (Highest Level Allowed)</b>	<b>MCLG (Goal)</b>	<b>Potential Source</b>
<b>Nitrate</b> Test Results Year: 2015	N	0.5 1 Sample	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks; erosion of natural deposits
<b>Barium</b> Test Results Year: 2015	N	0.1 1 Sample	ppm	2	2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
<b>Cadmium</b> Test Results Year: 2015	N	0.1 1 Sample	ppb	5	5	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
<b>Chromium</b> Test Results Year: 2015	N	0.7 1 Sample	ppb	100	100	Discharge from steel and pulp mills; erosion of natural deposits
<b>Selenium</b> Test Results Year: 2015	N	2.8 1 Sample	ppb	50	50	Discharge from petroleum and metal refineries; erosion
<b>Thallium</b> Test Results Year: 2015	N	0.6 1 Sample	ppb	2	0.5	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
<b>THM – Stage 2</b> Test Results Year: 2015	Y	<b>LRAA: 95</b> 1 Sample	ppb	80	N/A	Disinfectant Byproducts
<b>HAA5 – Stage 2</b> Test Results Year: 2015	N	LRAA: 47 1 Sample	ppb	60	N/A	Disinfectant Byproducts
<b>Chlorine Residual</b> Test Results Year: 2015	N	Average: 0.5 Range: 0.1 – 0.8	ppm	MRDL 4	MRDLG 4	Water additive used to control microbes

**Secondary Contaminants**

<b>Contaminant</b>	<b>Average Level Detected</b>	<b>Range of Detections</b>	<b>Unit of Measurement</b>	<b>RUL</b>	<b>Potential Source</b>
Chloride (2015)	8	N/A	ppm	250	Naturally Occurring
Hardness (2015)	32	N/A	ppm	250	Naturally Occurring
Sodium (2015)	11	N/A	ppm	50	Naturally Occurring
Sulfate (2015)	6.5	N/A	ppm	250	Naturally Occurring
Total Dissolved Solids (2015)	42	N/A	ppm	500	Naturally Occurring
Surfactants/Detergents (2015)	0.03	N/A	ppm	0.5	Treatment Process

### How to read this report:

<b>Word, Acronym, Symbol or Note</b>	<b>Definition</b>
Y/N	Yes/No
AL	Action Level. The concentration of a contaminant, which, if exceeded, triggers a treatment or other requirements, which a water system must follow.
CDC	Centers for Disease Control
EPA	United States Environmental Protection Agency.
LRAA	Locational Running Annual Average
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.
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.
N/A	Not applicable
NJDEP	New Jersey Department of Environmental Protection
ND	Not detected
ppb	Parts per billion. Means 1 part per 1,000,000,000 (same as micrograms per liter) and correspond to 1 penny in \$10 million.
ppm	Parts per million. Means 1 part per 1,000,000 parts (same as milligrams per liter) and corresponds to 1 penny in \$10,000.
RAA	Running Annual Average
RUL	Recommended Upper Limit

### Health Effects of Detected Contaminants:

**Barium:** Barium is a naturally occurring ore used in a variety of manufactured goods. The EPA has found that in some people, short exposure to Barium in exceedence of the MCL can cause gastrointestinal disturbances and muscle weakness. Long term exposure to barium at levels above the MCL may cause high blood pressure.

**Cadmium:** Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.

**Chloride:** Chloride occurs naturally in water and is monitored as a secondary contaminant. Secondary contaminants are aesthetic (taste and odor) rather than health risks; however, in high concentrations sulfate can cause Diarrhea in some people.

**Chlorine:** Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

**Chromium:** Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.

**Hardness:** Water hardness is the traditional measure of the capacity of water to react with soap and producing lather. Hard water often produces a noticeable deposit of precipitate (e.g. insoluble metals, soaps or salts) in containers, including “bathtub ring”.

**(HAA5) Haloacetic Acids:** Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

**Nitrate:** 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 for advice from your health care provider.

**Secondary Contaminant:** These parameters do not have an impact on health. Secondary Contaminants affect aesthetic qualities such as odor, taste or appearance. Secondary standards are recommendations, not mandates.

**Selenium:** Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.

**Sodium (Na):** Naturally occurring mineral. Sodium is essential for good health. Certain medical conditions however, require sodium intake monitoring. Excessive sodium can adversely affect high blood pressure, heart disease or diabetes. Contact your physician for further information.

**Sulfate:** Sulfate occurs naturally in water and is monitored as a secondary contaminant. Secondary contaminants are aesthetic (taste and odor) rather than health risks; however, in high concentrations sulfate can cause Diarrhea in some people.

**Surfactants/Detergents:** In general, prolonged exposure of skin to surfactants in excess of the RUL can cause chafing.

**Thallium:** Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.

**THMs (Trihalomethanes):** Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

**Total Dissolved Solids:** (TDS) in drinking water is not a health hazard. The recommended upper limit has been established based on the aesthetic properties of water. Water high in TDS may taste salty or brackish. High TDS may also indicate that other ions naturally present in water may be above established regulatory levels.

### **Violations Incurred at Sussex Water Department in 2015**

**Chlorine Treatment Technique Violation – April 2014:** We routinely monitor the disinfectant residual concentration in the water entering the distribution system. This measurement tells us whether we are effectively disinfecting the water supply. Disinfectant residual is the amount of chlorine or related disinfectant present in the pipes of the distribution system. If the amount of disinfectant is too low, organisms could grow in the pipes. On April 19<sup>th</sup>, 2014, the plant experienced a failure in the chlorination system and the alarms that monitor that system. For a brief time, disinfectant levels dropped below 0.2 milligrams per liter (mg/L) for a period of 4 hours and 15 minutes. The standard is that disinfectant levels may not drop below 0.2 mg/L for more than 4 hours. The loss of chlorine can result in harmful bacteria entering the water system. Water test results showed no levels of bacteria. The Borough of Sussex immediately addressed the issue through a series of plant repairs and the water system was returned to compliance.

**Turbidity Treatment Technique Violation – July 2014:** The turbidity levels measured at the combined filter effluent exceeded 1 NTU for a period of approximately 10 hours from 04:15 hours (1.59 NTU) to 15:15 hours (1.62 NTU) on 07-04-2014. The maximum turbidity level recorded at the combined filter effluent was 4.39 NTU (11:45 hours) on 07-04-2014. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches. The New Jersey Department of Environmental

Protection (NJDEP) has required Sussex Water Department to conduct, complete and implement a CPE of the water treatment plant. NJDEP is also requiring Sussex Water Department to evaluate and demonstrate that it has adequate technical, managerial and financial resources to conduct all the activities associated with running its water system.

**Turbidity Calibration Violation - 2014:** Our water system violated a drinking water requirement to monitor for turbidity during several time periods between January 2014 and February 2015. We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During January 2014 through February 2015, Sussex Water Department did not complete all monitoring requirements for turbidity and, therefore, cannot be sure of the quality of your drinking water during that time.

Contaminant	Required sampling frequency	Number of samples collected	When samples should have been collected	When samples were collected
Turbidity	1 sample every 4-hrs when a turbidity meter fails	0	Each time an individual filter turbidimeter failed during 1/2014-2/2015	4-hr grab sampling began on 2-25-15

Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. On March 4<sup>th</sup>, 2015 new individual filter turbidimeters were installed by the contracted operators and calibrated so the situation is considered to be resolved. Sussex Water Department has since monitored for turbidity at the required frequency and the turbidity levels have been found to be below state standards.

**Coliform (TCR) – Monitoring (TCR), Routine Minor - August 2014:** During the monitoring period of August 2014, coliform bacteria results were submitted late to the NJ Department of Environmental Protection (NJDEP). This late submission was an oversight and did not have any impact on public health and safety. We have already taken the steps to ensure that all water quality results are reported and submitted on time to the NJDEP. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present.

**Chlorine – Monitoring RTN/RPT Major; SWTR-Filter - April 2014:** During the monitoring period of April 2014, monthly chlorine residuals were submitted late to the NJ Department of Environmental Protection (NJDEP). This late submission was an oversight and did not have any impact on public health and safety. We have already taken the steps to ensure that all water quality results are reported and submitted on time to the NJDEP.

### **Source Water Assessment**

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued the Source Water Protection Report and Summary for this public water system, which is available at [www.nj.gov/dep/watersupply/swap/creport.htm](http://www.nj.gov/dep/watersupply/swap/creport.htm) or by contacting the NJDEP, Bureau of Safe Drinking Water at 609-292-5550.

The table below illustrates the susceptibility rating for each individual source for each of the contaminant categories at this water system. For susceptibility ratings of purchased water, refer to the specific water system’s source water assessment report. NJDEP considered all surface water highly susceptible to pathogens. For the purpose of the Source Water Assessment Program, radionuclides are more of a concern for ground water than surface water. If the system is rated highly susceptible for a contaminant category, it does not mean that 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, NJDEP may customize (change existing) monitoring schedules based on the susceptibility ratings. If you have questions regarding the source water assessment report or summary, please contact the Bureau of Safe Drinking Water at 609-252-5550.

Item	Pathogens			Nutrients			Pesticides			Volatile Organic Compounds			Inorganics			Radionuclides			Radon			Disinfection Byproduct Precursors		
	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L	H	M	L
Sources																								
Wells – 0																								
GUDI - 0																								
Surface Water Intakes – 1	1				1			1			1	1				1			1	1				

Susceptibility ratings for a public water system are based on the potential for a contaminant to be:

- At or above 50% of the Drinking Water Standard (MCL) = **(H) High**
- Between 10 and 50% of the Drinking Water Standard (MCL) = **(M) Medium**
- Less than 10% of the Drinking Water Standard (MCL) = **(L) Low**

**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, and are both naturally occurring and man-made. Examples include nitrogen and phosphorus.

**Volatile Organic Compounds (VOCs):** 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.

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

*This Water Quality Report was prepared for the Borough of Sussex by:*

