



Annual WATER
QUALITY
REPORT

Reporting Year 2011



Presented By _____
Township of
South Orange Village

South Orange

PWS ID#: NJ0719001

Meeting the Challenge

We are once again proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2011. 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 share with us your thoughts or concerns about the information in this report. After all, well-informed customers are our best allies.

Community Participation

We want our valued customers to be informed about their water utility. Regularly scheduled Board of Water Commissioners meetings are held on the second Tuesday of each month at 99 South Grove Street, East Orange, New Jersey, at 5:00 p.m.

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/safewater/lead.

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.

QUESTIONS?

For more information about this report, or for any questions related to your drinking water, please call the East Orange Water Commission's Customer Service Department at (973) 266-8869, Monday through Friday from 8:30 a.m. to 4:00 p.m. EST, or via email at water@ci.east-orange.nj.us. We also invite you to visit us online at www.eowater.com.

How Is My Water Treated and Purified?

To ensure the continued quality of water delivered through the Water Supply, chlorine treatment is provided for disinfection at the distribution points. The water supply obtained from Well No. 17 has an additional step for purification passing through an aeration tower to remove any volatile organic chemicals (VOCs) that might be present in the water supply. These are the only treatments provided to the water supply and no other treatment is required.

How Long Can I Store Drinking Water?

The disinfectant in drinking water will eventually dissipate, even in a closed container. If that container housed bacteria prior to filling up with the tap water, the bacteria may continue to grow once the disinfectant has dissipated. Some experts believe that water could be stored up to six months before needing to be replaced. Refrigeration will help slow the bacterial growth.

Where Does My Water Come From?

This year the Township of South Orange Village Water System was supplied with an average of 2.6 million gallons of water each day for domestic consumption, fire protection, ground irrigation, and other water supply needs.

The source of the water supply provided to the Township of South Orange Village Water System is ground water derived through Well No. 17, located in Grove Park, Township of South Orange Village, and the balance from the East Orange Water Reserve located in Livingston, Millburn, Florham Park and surface water provided from the interconnection with the City of Newark Water System. In rare instances when an emergency should arise and a supplemental volume of water is needed to meet the demands of the System, the Township of South Orange Village Water System has an additional water interconnection with New Jersey American Water Company.

To learn more about our watershed, go to the U.S. EPA's Surf Your Watershed at www.epa.gov/surf.

Violation Information

MCL Violations

The EOWC was issued an MCL Violation for PCE for the 1st Quarter of 2011 for exceedance of the annual running average of Volatile Organic Compounds (VOC) in the water supply. The EOWC has addressed this one exceedance by turning off the ground water source wells with the highest concentration of PCE. Since the issuance of the MCL Violation the EOWC has been below the established maximum standards set by the NJ DEP. The EOWC is currently engaged in contract services for the development of an engineered solution and treatment of VOC's for the EOWC Well Field. Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their livers, and may have an increased risk of getting cancer.

Monitoring and Reporting Violations

The EOWC was issued one *E. coli* monitoring major violation in June 2011 and four *E. coli* monitoring source minor/major violations in August and September 2011. These violations were issued due to incomplete re-sampling of the water source and failure to follow monitoring requirements. We do not believe these events had any impact on public health and/or safety. The EOWC has instituted procedures to ensure that re-sampling, monitoring and reporting will be performed according to established NJDEP standards.

Source Water Assessment

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued the Source Water Assessment Report and Summary for this public water system, which is 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 the East Orange Water Commission's Customer Service Department at (973) 266-8869 to obtain information regarding your water system's Source Water Assessment. Use this information: South Orange Water Department PWSID # 0719001.

South Orange Village ratings reflect the potential for contamination of source water, not the existence of contamination. If a system is rated highly susceptible for a contaminant category, this does not mean that a customer is or will be consuming contaminated drinking water.

The following categories were rated with high potential to contaminate our water supply:

volatile organic compounds, inorganics, radionuclides, and radon.

The following categories were rated with medium potential to contaminate our water supply:

nutrients, disinfection by-product precursors.

The following categories were rated with low potential to contaminate our water supply:

pathogens, pesticides.

South Orange Water Department is a public community water system consisting of 1 well(s), 0 wells under the influence of surface water, 0 surface water intake(s), 2 purchased ground water source(s), and 0 purchased surface water source(s).

This water system consisting of 1 well(s), 0 wells source water comes from the following aquifer: Brunswick Aquifer

This system purchases water from the following water systems: EAST ORANGE W D, N .J. AMERICAN W. CO. SHORT HILLS, and the City of Newark.

Susceptibility Ratings for South Orange Water Department Sources

The information below illustrates the susceptibility ratings for the seven contaminant categories (and radon) for each source in the system. The information 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 the Source Water Assessment Program, radionuclides are more of a concern for ground water than for surface water. As a result, surface water intakes' susceptibility to radionuclides was not determined and they all received a low rating.

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 (that is, 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; they can be 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 By-product Precursors:** A common source is naturally occurring organic matter in surface water. Disinfection by-products are formed when the disinfectants (usually chlorine) used to kill pathogens react with dissolved organic material (for example, leaves) present in surface water.

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 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.

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 South Orange Village		City of East Orange		City of Newark			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Arsenic (ppb)	2011	5	0	NA	NA	NA	NA	<3	ND-<3	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2011	2	2	0.3	NA	NA	NA	<0.01	ND-<0.01	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2011	[4]	[4]	0.59 (RAA)	0.50-0.67	0.66 (RAA)	0.53-0.76	0.479 (RAA)	NA	No	Water additive used to control microbes
Chromium (ppb)	2011	100	100	6	NA	NA	NA	NA	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Haloacetic Acids [HAA] ² (ppb)	2011	60	NA	19 (RAA)	ND-68	10 (RAA)	ND-23	NA	NA	No	By-product of drinking water disinfection
Mercury [inorganic] (ppm)	2011	0.002	0.002	NA	NA	NA	NA	<0.047	ND-<0.002	No	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland
Nickel (ppb)	NA	100	NA	NA	NA	2	NA	NA	NA	No	Pollution from mining and refining operations; Natural occurrence in soil
Nitrate (ppm)	2011	10	10	2.6	NA	1.1	NA	<0.50	ND-<0.50	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Selenium (ppb)	2011	50	50	3	NA	NA	NA	NA	NA	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
TTHMs [Total Trihalomethanes] ² (ppb)	2011	80	NA	30 (RAA)	4.7-83.4	16 (RAA)	5.1-32.1	NA	NA	No	By-product of drinking water disinfection
Tetrachloroethylene (ppb)	2011	1	0	NA	NA	1.54 (RAA)	0.3-3.5	NA	NA	Yes ³	Discharge from factories and dry cleaners
Total Coliform Bacteria (% positive samples)	2011	5% of monthly samples are positive	0	NA	NA	5.9	NA	0.70	NA	Yes ³	Naturally present in the environment
Turbidity ⁴ (NTU)	2011	TT	NA	NA	NA	NA	NA	0.60	NA-0.60	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2011	TT	NA	NA	NA	NA	NA	97.7	NA	No	Soil runoff
Uranium (ppb)	2008	30	0	12.3	NA	3.3	NA	NA	NA	No	Erosion of natural deposits

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)	2010	1.3	1.3	0.45	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2010	15	0	5.05	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits

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 Water systems were required by the U.S. EPA to conduct evaluations of their distribution systems. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in the distribution systems that have elevated disinfection by-product concentrations. Disinfection by-products (e.g., HAAs and TTHMs) result from continuous disinfection of drinking water and form when disinfectants combine with organic matter that naturally occurs in the source water.

³ This is a City of East Orange violation only.

⁴ Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system. The turbidity rule requires that 95% or more of the monthly samples must be less than or equal to 0.3 NTU (no sample may exceed 1 NTU).

Definitions

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

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.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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).

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.