

*Annual*  
**WATER**  
**QUALITY**  
**REPORT**

*Reporting Year 2013*



*Presented By*  
**Township of**  
**South Orange Village**

PWS ID#: NJ0719001

## 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 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](http://www.epa.gov/safewater/lead).

## There When You Need Us

The East Orange Water Commission (EOWC) is pleased to present its Annual Water Quality Report, covering all testing performed between January 1 and December 31, 2013. Over the years, the Board of Water Commissioners, in conjunction with the various divisions within the Commission, has been dedicated to producing drinking water that exceeds all state and federal standards.

The EOWC is proud to continue delivering the best-quality drinking water to you, our customers. As new challenges to drinking water safety emerge, the EOWC will remain vigilant in meeting the goals of safe drinking water, source water protection, water conservation, and community education. The EOWC will uphold the needs of all our water users, with the highest levels of integrity and professionalism.

We encourage you to share your thoughts with us on the information contained in this report. Should you have any questions or concerns about your water, please contact us at (973) 266-8869.

## Where Does My Water Come From?

This year the Township of South Orange Village Water System was supplied with an average of 3 million gallons of water each day for domestic consumption, fire protection, ground irrigation, and other water supply needs.

The source of water supply provided to the Township of South Orange Village Water System is from groundwater 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, and Florham Park. In addition, water was purchased from the City of Newark to meet consumer demand. In rare instances when an emergency should arise, the Township of South Orange Village Water System has water interconnections with the 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](http://www.epa.gov/surf).

## 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.

## 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](http://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.

### **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 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), 1 purchased ground water source(s), and 1 purchased surface water source(s).

This system's 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. NJDEP 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.

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.

- **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.

## 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, at 5:00 pm.

## How Is My Water Treated and Purified?

To ensure the quality of our water, it is treated with sodium hypochlorite (chlorine) as a disinfectant. 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. No additional treatment is currently required to provide excellent quality water.

## About our Violation

During the monitoring period of 2011-2013, we did not monitor for the presence of Primary Inorganics in the public drinking water system. Upon being notified of this violation by the NJ Department of Environmental Protection (NJDEP), we immediately analyzed our water supply for Primary Inorganics. Results of the analysis have been received and properly recorded as required by state and federal law (results of detected contaminants are listed in the table with a “Year Sampled” date of 2014). We do not believe that missing this monitoring requirement had any impact on public health and safety. We have already taken the steps to ensure that adequate monitoring and reporting will be performed in the future so that this oversight will not be repeated.

(The East Orange Water Commission and the Village of South Orange Township received separate but the same monitoring violations. Samples for Primary Inorganics were taken from both water systems; see results for detected contaminants.)

## 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 am to 4:00 pm EST or via email at [water@eastorange-nj.gov](mailto:water@eastorange-nj.gov) and visit us online at [www.eowater.com](http://www.eowater.com).

**REGULATED SUBSTANCES <sup>1</sup>**

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	Township of South Orange Village		City of East Orange		City of Newark		VIOLATION	TYPICAL SOURCE
				AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH		
<b>Alpha Emitters</b> (pCi/L)	2008	15	0	4.4	NA	NA	NA	NA	NA	No	Erosion of natural deposits
<b>Antimony</b> <sup>2,3</sup> (ppb)	2014	6	6	<3	NA	<3	NA	NA	NA	No	Discharge from petroleum refineries; Fire retardants; Ceramics; Electronics; Solder
<b>Arsenic</b> <sup>2,3</sup> (ppb)	2014	5	0	1.48	NA	0.47	NA	<0.5 <sup>4</sup>	ND-<0.5 <sup>4</sup>	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
<b>Barium</b> <sup>2,3</sup> (ppm)	2014	2	2	0.995	NA	0.57	NA	0.0076 <sup>4</sup>	ND-0.0076 <sup>4</sup>	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
<b>Beryllium</b> <sup>2,3</sup> (ppb)	2014	4	4	<0.03	NA	<0.03	NA	NA	NA	No	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries
<b>Cadmium</b> <sup>2,3</sup> (ppb)	2014	5	5	<0.03	NA	<0.03	NA	NA	NA	No	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints
<b>Chlorine</b> (ppm)	2013	[4]	[4]	0.64 (AA) <sup>5</sup>	0.28-1.46	0.67 (AA)	0.25-1.19	0.45 (AA)	NA	No	Water additive used to control microbes
<b>Chromium</b> <sup>2,3</sup> (ppb)	2014	100	100	<0.65	NA	0.71	NA	NA	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
<b>Cyanide</b> <sup>2,3</sup> (ppb)	2014	200	200	<3.7	NA	<3.7	NA	NA	NA	No	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories
<b>Fluoride</b> <sup>2,3</sup> (ppm)	2014	4	4	<0.25	NA	<0.25	NA	0.07 <sup>4</sup>	NA <sup>4</sup>	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
<b>Haloacetic Acids [HAAs]-Stage 2</b> (ppb)	2013	60	NA	9	ND-16.5	34	ND-53	26	ND-46	No	By-product of drinking water disinfection
<b>Mercury [inorganic]</b> <sup>2,3</sup> (ppb)	2014	2	2	<0.03	NA	<0.03	NA	<0.2 <sup>4</sup>	ND-<0.2 <sup>4</sup>	No	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland
<b>Nickel</b> <sup>2,3</sup> (ppb)	2014	100	NA	<0.6	NA	<0.6	NA	NA	NA	No	Pollution from mining and refining operations; natural occurrence in soil
<b>Nitrate</b> (ppm)	2013	10	10	2.16	NA	1.29	NA	<1	ND-<1	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
<b>Selenium</b> <sup>2,3</sup> (ppb)	2014	50	50	<1.58	NA	<1.58	NA	NA	NA	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
<b>Tetrachloroethylene</b> (ppb)	2013	1	0	NA	NA	1.22	0.72-1.64	NA	NA	No	Discharge from factories and dry cleaners
<b>Thallium</b> <sup>2,3</sup> (ppb)	2014	2	0.5	<0.58	NA	<0.58	NA	NA	NA	No	Leaching from ore-processing sites; Discharge from electronics, glass, and drug factories
<b>Total Coliform Bacteria</b> (% positive samples)	2013	5% of monthly samples are positive	0	ND	NA	1.25%	NA	0.59%	NA	No	Naturally present in the environment
<b>Total Trihalomethane [TTHMs]-Stage 2</b> (ppb)	2013	80	NA	20	2.48-27	56	55.6-65.3	45	11.9-69.7	No	By-product of drinking water disinfection
<b>Turbidity</b> <sup>7</sup> (NTU)	2013	TT	NA	NA	NA	NA	NA	0.54	0.54	No	Soil runoff
<b>Turbidity</b> (Lowest monthly percent of samples meeting limit)	2013	TT=95% of samples <0.3 NTU	NA	NA	NA	NA	NA	95.7%	NA	No	Soil runoff
<b>Uranium</b> (ppb)	2008	30	0	10	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	0.29	0/33	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2010	15	0	8.82	1/33	No	Corrosion of household plumbing systems; Erosion of natural deposits

**SECONDARY SUBSTANCES**

				Township of South Orange Village		City of East Orange		City of Newark			
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	RUL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	AMOUNT DETECTED	RANGE LOW-HIGH	EXCEEDANCE	TYPICAL SOURCE
Aluminum (ppb)	2013	200	NA	NA	NA	NA	NA	368	NA	Yes	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2013	250	NA	NA	NA	NA	NA	26.5	NA	No	Runoff/leaching from natural deposits
Color (Units)	2013	10	NA	NA	NA	NA	NA	3	NA	No	Naturally-occurring organic materials
Foaming agents <sup>2,3</sup> (ppb)	2014	500	NA	32	NA	36	NA	NA	NA	No	Municipal and industrial waste discharges
Hardness [as CaCO <sub>3</sub> ] (ppm)	2009	250	NA	365	NA	368	NA	43.9 <sup>4</sup>	NA <sup>4</sup>	Yes	Naturally occurring
Iron (ppb)	2013	300	NA	<200	NA	NA	NA	12	NA	No	Leaching from natural deposits; Industrial wastes
Manganese <sup>8</sup> (ppb)	2013	50	NA	<40	NA	51	NA	18	NA	Yes	Leaching from natural deposits
pH (Units)	2009	6.5-8.5	NA	8.2	NA	7.6	NA	7.32 <sup>4</sup>	NA <sup>4</sup>	No	Naturally occurring
Sodium <sup>2,3</sup> (ppm)	2014	50	NA	44.3	NA	20.2	NA	NA	NA	No	Naturally occurring
Sulfate <sup>2,3</sup> (ppm)	NA	250	NA	23.8	NA	56.1	NA	10.9 <sup>4</sup>	NA <sup>4</sup>	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids (ppm)	2013	500	NA	NA	NA	NA	NA	104	NA	No	Runoff/leaching from natural deposits
Zinc (ppm)	2013	5	NA	NA	NA	NA	NA	<0.2	NA	No	Runoff/leaching from natural deposits; Industrial wastes

## Sampling Results

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

<sup>1</sup> 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.

<sup>2</sup> Township of South Orange Village: Sampled February 2014 to fulfill the requirements of the Monitoring Violation (see Violation Section).

<sup>3</sup> City of East Orange: Sampled February 2014 to fulfill the requirements of the Monitoring Violation (see Violation Section).

<sup>4</sup> Sampled in 2013.

<sup>5</sup> AA = Annual Average

<sup>6</sup> LRAA = Locational Running Annual Average

<sup>7</sup> Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our 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).

<sup>8</sup> The recommended upper limit for manganese is based on staining of laundry. Manganese is an essential nutrient, and toxicity is not expected from high levels which would be encountered in drinking water.

## Definitions

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

**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 (i.e., taste and odor).

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