



*Annual* WATER  
QUALITY  
REPORT

*Reporting Year 2011*



Presented By \_\_\_\_\_  
City of East Orange

PWS ID#: NJ0705001

## 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. If you want to learn more, please attend any of our regularly scheduled Board of Water Commissioners meetings held on the second Tuesday of the month at 99 South Grove Street, East Orange, NJ, at 5:00 p.m.

## Where Does My Water Come From?

This year, the City of East Orange was supplied with an average of 8 million gallons of water each day for domestic consumption, fire protection, ground irrigation, and other water supply needs. The City draws ground water from four wellfields, containing 18 wells, in the 2,400-acre East Orange Water Reserve located in Millburn, Livingston, and Florham Park. In addition, the City purchases surface water from the City of Newark to meet consumer demand.

## 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.

## 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.

## Treatment Train Description

To ensure the quality of our water, it is treated with chlorine as a disinfectant. No additional treatment is required to produce excellent-quality drinking water.

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

## QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please contact the East Orange Water Commission (EOWC) Customer Service Department, Monday through Friday, at (973) 266-8869 between the hours of 8:30 a.m. and 4:00 p.m., EST or via email at [water@ci.east-orange.nj.us](mailto:water@ci.east-orange.nj.us), and visit us online at [www.eowater.com](http://www.eowater.com).

## 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 the 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.

If a system is rated highly susceptible for a contaminant category, it does not mean a consumer is or will be consuming contaminated drinking water. Ratings reflect the potential for contamination of source water, not the existence of contamination.

### Results for our 18 wells:

The following categories were rated High potential for contamination at a number of wells: nutrients, volatile organic compounds, inorganics, radon, and disinfection by-product precursors.

The following categories were rated Medium potential for contamination at a number of wells: pathogens, nutrients, pesticides, inorganics, radionuclides, and disinfection by-product precursors.

The following categories were rated Low potential for contamination at a number of wells: nutrients, pesticides, and volatile organic compounds.

Surface water purchased from the City of Newark was rated High potential for contamination in the following categories: pathogens, inorganics, disinfection by-product precursors.

Surface water purchased from the City of Newark was rated Low potential for contamination in the following categories: nutrients, pesticides, volatile organic compounds, radionuclides and radon.

## 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 NJDEP. 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.

The EOWC was required to issue a Boil Water Advisory for the City in September 2011 for four days. This was due to the EOWC obtaining a monthly MCL Violation for total coliforms and an acute MCL Violation for two positive *E. coli* distribution samples in September. Subsequent water quality analysis and testing determined there was not a presence of coliforms in the water supply, but issues associated with our water sampling procedures and water sampling stations, located throughout the City. These issues have since been resolved.

Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed, and this was a warning of potential problems.

Fecal coliforms and *E. coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.

### Monitoring and Reporting Violations

The EOWC was issued one monitoring total coliform major violation in September 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.

The EOWC was issued a trihalomethane/haloacetic acids monitoring violation in July 2011. This violation was the result of an administrative oversight in filing data with the NJDEP. The wrong results of quarterly samples had been inadvertently submitted to NJDEP by the EOWC contracted vendor. The vendor re-submitted the correct results and the violation was removed. At no time did this incident pose a threat to public health and/or safety, nor did it have any impact on the high quality of drinking water provided to our customer's. The EOWC has implemented procedures to confirm the water sampling results are being submitted correctly.



## 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 <sup>1</sup>

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

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL	VIOLATION	TYPICAL SOURCE
<b>Copper</b> (ppm)	2009	1.3	1.3	0.35	0	No	Corrosion of household plumbing systems; Erosion of natural deposits
<b>Lead</b> (ppb)	2009	15	0	4.05	0	No	Corrosion of household plumbing systems; Erosion of natural deposits

<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>We were required by the U.S. EPA to conduct an evaluation of our distribution system. This is known as an Initial Distribution System Evaluation (IDSE) and is intended to identify locations in our distribution system 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.

<sup>3</sup>No sample sites exceeded the Action Level.

## 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.

**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).