All Drinking Water May Contain Contaminants

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 water poses a health risk. In order to ensure that tap water is safe to drink, the 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. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (1-800-426-4791).

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. The City of East Orange Board of Water Commissioners is 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.

There When You Need Us

The City of East Orange Board of Water Commissioners (EOBWC) is pleased to present its Annual Water Quality Report, covering all testing performed between January 1 and December 31, 2017. 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 EOBWC is proud to continue delivering the best quality drinking water to you, our customers. As new challenges to drinking water safety emerge, the EOBWC will remain vigilant in meeting the goals of safe drinking water, source water protection, water conservation, and community education. The EOBWC 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.

Community Participation

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

PWS ID #NJ0705001

City of East Orange

Presented by the

City of East Orange
Board of Water Commissioners and The East Orange Water Department

2018 Annual Drinking Water Quality Report

(Reporting year 2017)

2017 Annual Drinking Water Quality Report

PWS ID #NJ0705001

Our Drinking Water Is Regulated

The City of East Orange Board of Water Commissioners and The East Orange Water Department is pleased to share this report with you. This report is a summary of the quality of the water we provide our customers. The analysis covers January 1 through December 31, 2017, and was made by using the data from the most recent U.S. Environmental Protection Agency (EPA) required tests and is presented in the attached pages. We hope this information helps you become more knowledgeable about what's in your drinking water.

Where Do We Get Our Drinking Water?

This year the City of East Orange Water System was supplied with an average of 7.4 million gallons of water each day for domestic consumption, fire protection, ground irrigation, and other water supply needs. The City draws groundwater from four wellfields, containing 18 wells, in the 2,400-acre East Orange Water Reserve located in Millburn, Livingston, and Florham Park.

To ensure the quality of our water the "raw" water is pumped to our Air-Stripping facility that removes any volatile organic compounds (VOCs) which may be present. The water is then disinfected with calcium hypochlorite (chlorine).

Sources of Drinking Water

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 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 byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Source Water Assessment

The New Jersey Department of Environmental Protection (NJDEP) has completed and issued a Source Water Assessment Report and Summary for this public water system. It is available at 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 City of East Orange Water Department's Customer Service Division at (973) 266-8869 for 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.

City of East Orange
Water Department

99 South Grove Street
East Orange, NJ 07018

2017 Test Results

PWS ID #NJ0705001

We routinely monitor for contaminants in your drinking water according to Federal and State laws. The test results table shows the results of our monitoring for the period of January 1 to December 31, 2017. In the table you might find terms and abbreviations you are not familiar with. To help you better understand these terms we've provided the following definitions:

Definitions

- **Action Level (AL) –** the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **Action Level Goal (ALG) –** the level of a contaminant in drinking water below which there is no known or expected risk to health. ALGs allow for a margin of safety.
- **Avg. –** Regulatory compliance with some MCLs is based on running annual average of monthly samples.
- **Maximum Contaminant Level (MCL) –** 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. Secondary MCLs are unenforceable guidelines for aesthetic quality of water.
- **Maximum Contaminant Level Goal (MCLG) –** 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.
- **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 Level 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 contaminants.
- **NA –** not applicable.
- **ND –** not detected.
- **NTU –** Nephelometric Turbidity Units.
- **Parts per billion (ppb) –** micrograms per liter (µg/L) or one ounce in 7,800,000 gallons of water.
- **Parts per million (ppm) –** milligrams per liter (mg/L) or one ounce in 7,800 gallons of water.
- **pCi/L (picocuries per liter) –** A measure of radioactivity.
- **RUL (Recommended Upper Limit) –** RULs are established to regulate the aesthetics of drinking water (i.e., taste and odor).
- **TT –** treatment technique.

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 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).

Regulated Substances[1]

Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	City of East Orange Amount Detected	City of East Orange Range	City of Newark Amount Detected	City of Newark Range	Violation Yes/No	Likely Source of Contamination
Alpha Emitters (pCi/L)	2008	15	0	ND	NA	ND	NA	No	Erosion of natural deposits
Arsenic (ppb)	2017	5	0	0.00141	NA	<0.5	NA	No	Erosion of natural deposits; runoff from orchards; runoff from glass and electronics production wastes
Barium (ppm)	2017	2	2	0.0609	NA	0.008	NA	No	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Beryllium (ppb)	2017	4	4	<0.00025	NA	NA	NA	No	Discharge from metal refineries and coal-burning factories; discharge from electical, aerospace, and defense industries
Cadmium (ppb)	2017	5	5	<0.05	NA	NA	NA	No	Corrosion of galvanized pipes; erosion of natural deposits; discharge from metal refineries; runoff from waste batteries and paints
Chlorine[6] (ppm)	2017	[4]	[4]	0.83 (AA)	0.04-1.99	0.584 (AA)	NA	No	Water additive used to control microbes
** Amount detected represents an annual average.*									
Chromium (ppb)	2017	100	100	0.00218	NA	ND	NA	No	Discharge from steel and pulp mills; Erosion of natural deposits
Cyanide (ppb)	2017	200	200	<0.01	NA	NA	NA	No	Discharge from steel/metal factories; discharge from plastic and fertilizer factories
Fluoride (ppm)	2017	4	4	<0.2	NA	0.12	NA	No	Water additive which promotes strong teeth; erosion of natural deposits; discharge from fertilizer and aluminum factories
Stage II Haloacetic Acids [HAAs] (ppb)	2017	60	NA	21	ND-44.6	42.25	ND-77.0	No	By-product of drinking water disinfection
Mercury (ppb)	2017	2	2	<0.0002	NA	<0.0002	NA	No	Erosion of natural deposits; discharge from refineries and factories; runoff from landfills and croplands
Nitrate (ppm)	2017	10	10	1.5	NA	<0.2	NA	No	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Selenium (ppb)	2017	50	50	<0.006	NA	NA	NA	No	Discharge from petroleum and metal refineries; erosion of natural deposits; discharge from mines
Tetrachloroethylene (ppm)	2016	0.005	0	0.00111 (RAA)[3]	0.0005-0.00218	NA	NA	No	Discharge from factories and dry cleaners

Thallium (ppb)	2017	2	2	<0.00025	NA	NA	NA	No	Leaching from ore-processing sites; discharge from electronics, glass, and drug factories
Stage II Total Trihalomethanes [TTHMs] (ppb)	2017	80	NA	46	3.31-91.1	45.3	25.1-77	No	By-product of drinking water disinfection
Total Coliform Bacteria (% positive samples)	2017	5% of monthly samples are positive	0	0% 0/85 samples		0.004% 0/1951 samples		No	Naturally present in the environment
Turbidity[4] (NTU)	2017	TT=1 NTU	NA	NA	NA	0.15	0.1-0.42	No	Soil runoff
Uranium (ppb)	2008	30	0	3.3	NA	ND	NA	No	Erosion of natural deposits
Xylenes (total) (ppm)	2016	10	10	0.00114	NA	NA	NA	No	Discharge from petroleum factories; discharge from chemical factories

Lead and Copper Contaminants – City of East Orange

Substance (Unit of Measure)	Year Sampled	AL	MCLG	Your Water	# of sites found above AL	Violation Yes/No	Likely Source of Contamination
Copper (ppm) (90th percentile)	2017	1.3	1.3	0.15	0/60	No	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppb) (90th percentile)	2017	15	0	4.28	0/60	No	Corrosion of household plumbing systems; erosion of natural deposits

Lead and Copper Contaminants – City of Newark

Substance (Unit of Measure)	Year Sampled	AL	MCLG	Your Water	# of sites found above AL	Violation Yes/No	Likely Source of Contamination
Copper (ppm) (90th percentile)	Jan-Jun 2017	1.3	1.3	0.26	0/108	Yes	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Copper (ppm) (90th percentile)	Jul-Dec 2017	1.3	1.3	0.231	0/104	Yes	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (ppm) (90th percentile)	Jan-Jun 2017	0.015	0	0.027	16/108	No	Corrosion of household plumbing systems; erosion of natural deposits
Lead (ppm) (90th percentile)	Jul-Dec 2017	0.015	0	0.0267	11/104	No	Corrosion of household plumbing systems; erosion of natural deposits

Radiological Contaminants – City of Newark

Substance (Unit of Measure)	Year Sampled	MCL [MRDL]	MCLG [MRDLG]	Amount Detected	Range	Violation Yes/No	Likely Source of Contamination
Combined Radium (pCi/L)	2017	5	0	1.5	NA	Yes	Erosion of natural deposits

Secondary Substances

			City of East Orange		City of Newark		
Substance (Unit of Measure)	Year Sampled	RUL	Amount Detected	Range	Amount Detected	Range	Likely Source of Contamination
Alkalinity (ppm)	2017	NS	181.2	NA	26.3	NA	Naturally present in the environment
Aluminum (ppm)	2017	≤0.200	<0.01	NA	0.083	NA	Erosion of natural deposits; residual from some surface water treatment processes
Antimony (ppm)	2017	0.006	<0.002	NA	NA	NA	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
Chloride (ppm)	2017	250	101	NA	45.2	NA	Runoff/leaching from natural deposits
Color (units)	2017	10	5 cu	NA	2	NA	Naturally occurring organic materials
Foaming Agents (ppm)	2017	0.5	<0.05	NA	ND	NA	Detergents/similar substances when water is agitated
Hardness [as CaCO3] (ppm)	2017	250	384	NA	52.6	NA	Naturally occurring
Iron (ppm)	2017	0.3	<0.2	NA	0.010	NA	Naturally present in the environment
Manganese[5] (ppb)	2017	50	0.00812	NA	0.025	NA	Leaching from natural deposits
Nickel (ppm)	2017	0.1	0.00957	NA	NA	NA	Naturally present in the environment
pH (units)	2017	6.5-8.5	7.96pH	NA	7.29	NA	Naturally occurring
Sodium (ppm)	2017	50	23.7	NA	23.2	NA	Naturally occurring
Sulfate (ppm)	2017	250	47.8	NA	11.1	NA	Runoff/leaching from natural deposits; industrial wastes
Total Dissolved Solids (ppm)	2017	500	579	NA	111	NA	Runoff/leaching from natural deposits
Zinc (ppm)	2017	5	<0.01	NA	<0.2	NA	Moderately abundant naturally occurring element used in the metal industry

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. *LRAA = Locational Running Annual Average*
3. *RAA = Running Annual Average*
4. *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).*
5. *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.*
6. *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.*
7. *AA = Annual Average*